Limited Energy Study of Hangar Facilities at Simmons Army Airfield (SAAF), Fort Bragg, North Carolina

Final Report
Volume 2 of 2
Sections 6-10

CONTRACT #DACA01-94-D-0034 DELIVERY ORDER 0004 SYSTEMS CORP PROJECT #94013.04

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Librarian Engineering

ECO - 1 CALCULATIONS

LIMITED ENERGY STUDY OF HANGAR FACILITIES AT SIMMONS ARMY AIRFIELD, FT. BRAGG, NC

This section contains the life-cycle cost analyses, energy calculations, and cost estimates for ECO-1: Install High Efficiency Interior/Exterior Lighting Systems. For the buildings in this ECO, multiple options have been calculated when applicable. These options include:

- 1. Fluorescent fixture replacement
- DTIC QUALITY INSPECTED 2
- 2. Incandescent lamp replacement
- 3. Exit sign replacement
- 4. Mercury vapor fixture replacement
- 5. Conventional sky light installation with automatic lighting control

A single life-cycle cost analysis and cost estimate was performed for each building which grouped all applicable options together.

The following pages contain the analysis for the Airfield buildings. These buildings contained a variety of fixtures. The following table details the replacement fixtures used.

| TABLE 6.1 | | | | | | |
|----------------------------|---|--|--|--|--|--|
| LIGHTIN | G FIXTURE REPLACEM | ments and installations | | | | |
| EXISTING FIXTURE | REPLACEMENT FIXTURE | NOTES | | | | |
| T-12 Fluorescent | T-8 Fluorescent with electronic ballast | A one-for-one lamp replacement with two- lamp fixtures. Three- and four- lamp fixtures were replaced by two- and three-lamp fixtures respectively, with reflectors added. | | | | |
| Incandescent | Compact Fluorescent | Incandescents larger than 200-watts in office areas were replaced with two- lamp, 4', T-8 fixtures. | | | | |
| Incandescent Exit Signs | LED Retrofit Kit | Existing fixture remains, incandescent lamps are removed and replaced by LED lamps. | | | | |
| Mercury Vapor | Metal Halide | One-for-one lamp replacement. 1,000- watt mercury vapors were replaced with 400-watt metal halides; 400-watt mercury vapors were replaced with 250- watt metal halides. | | | | |
| Exterior Lights | High Pressure Sodium (HPS) | Wattage of HPS based on equivalent lumen output of existing fixture. | | | | |
| | Conventional Sky Lights | Evaluated for high bay hangar use every 600 sq. ft. Includes automatic lighting control. | | | | |

6 ECO - 1 CALCULATIONS

LIMITED ENERGY STUDY OF HANGAR FACILITIES AT SIMMONS ARMY AIRFIELD, FT. BRAGG, NC ECO-1 CALCULATIONS: (sorted by building) **BUILDING 2936 BUILDING 3007 BUILDING 3262 BUILDING 3354 BUILDING 3637** BUILDING 3642 **BUILDING 3807 BUILDING 3954**

6 ECO - 1 CALCULATIONS

LIMITED ENERGY STUDY OF HANGAR FACILITIES AT SIMMONS ARMY AIRFIELD, FT. BRAGG, NC

| BUILDING 3962 LCCA | . 6-90 |
|-----------------------------------|-------------------------|
| BUILDING 4137 LCCA | 6-103 |
| BUILDING 4242 LCCA | 6-116 |
| BUILDING 7937 LCCA | 6-127 |
| BUILDING 8944 LCCA | 6-139 |
| BUILDING 9647 LCCA | 6-150 |
| NON-RECOMMENDED LIGHTING ANALYSES | 6-161 |
| BUILDING 2936 LCCA | |
| BUILDING 3007 LCCA | 6-169 6-170 6-172 |

LCCA

for Air Field Lighting Project

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LIFE CYCLE COST ANALYSIS SUMMARY
ENERGY CONSERVATION INVESTMENT PROGRAM (ECIP)

LCCID FY95
   INSTALLATION & LOCATION: FORT BRAGG REGION NOS. 4 CENSUS: 3
                                                        LCCID FY95 (92)
   PROJECT NO. & TITLE: ECO1 LIGHTING UPGRADE & SKY LIGHTS @ HANGARS
   FISCAL YEAR 95 DISCRETE PORTION NAME: LIGHTING
   ANALYSIS DATE: 02-03-95 ECONOMIC LIFE 10 YEARS PREPARED BY: JAH
   1. INVESTMENT
   A. CONSTRUCTION COST $ 618894.
   B. SIOH
                               30945.
   C. DESIGN COST
                                30945.
   D. TOTAL COST (1A+1B+1C) $ 680783.
  E. SALVAGE VALUE OF EXISTING EQUIPMENT $
  F. PUBLIC UTILITY COMPANY REBATE $
                                               0.
  G. TOTAL INVESTMENT (1D - 1E - 1F)
                                                0.
                                                    $
                                                        680783.
  2. ENERGY SAVINGS (+) / COST (-)
  DATE OF NISTIR 85-3273-X USED FOR DISCOUNT FACTORS OCT 1993
              UNIT COST SAVINGS
                                      ANNUAL $ DISCOUNT
      FUEL
              $/ MWH(1)
                         MWH/YR(2)
                                                             DISCOUNTED
                                      SAVINGS(3) FACTOR(4) SAVINGS(5)
      A. ELECT $ 34.95
                           2140.
      B. DIST $ .00
                                          74780.
                                                     8.77
                            0.
                                                                 655823.
     C. RESID $
                                          0.
                 .00
                                                      9.26
                                                                  0.
                              0.
     D. NAT G $
                                             Ο.
                 .00
                                                     10.08
                              0.
                                                                     0.
     E. COAL $
                                             0.
                                                    10.39
                 .00
                             0.
     F. LPG $ .00
                                                                     0.
                                             0.
                                                     9.39
                            0.
                                                                     0.
     M. DEMAND SAVINGS
                                            0.
                                                     8.78
     N. TOTAL
                                        70144.
                                                                     0.
                                                      8.49
                          2140. $ 144924.
                                                                595523.
                                                            $ 1251345.
 3. NON ENERGY SAVINGS(+) / COST(-)
    A. ANNUAL RECURRING (+/-)
       (1) DISCOUNT FACTOR (TABLE A)
                                                               22997.
        (2) DISCOUNTED SAVING/COST (3A X 3A1)
                                                    8.49
                                                                195245.
    B. NON RECURRING SAVINGS(+) / COSTS(-)
                           SAVINGS(+) YR
                                            DISCNT
               ITEM
                                                      DISCOUNTED
                            COST(-) OC FACTR
(1) (2) (3)
                                                      SAVINGS(+)/
                                                    COST(-)(4)
    d. TOTAL
                           $
                                  0.
   C. TOTAL NON ENERGY DISCOUNTED SAVINGS(+)/COST(-)(3A2+3Bd4)$ 195245.
4. FIRST YEAR DOLLAR SAVINGS 2N3+3A+(3Bd1/(YRS ECONOMIC LIFE))$ 167921.
5. SIMPLE PAYBACK PERIOD (1G/4)
                                                              4.05 YEARS
6. TOTAL NET DISCOUNTED SAVINGS (2N5+3C)
                                                           $ 1446590.
7. SAVINGS TO INVESTMENT RATIO
   (IF < 1 PROJECT DOES NOT QUALIFY)
                                    (SIR) = (6 / 1G) =
                                                              2.12
8. ADJUSTED INTERNAL RATE OF RETURN (AIRR):
                                                           11.17 %
```

ECO-1 CALCULATIONS (sorted by building)

```
LIFE CYCLE COST ANALYSIS SUMMARY STUDY: 2936H
ENERGY CONSERVATION INVESTMENT PROGRAM (ECIP) LCCID FY95 (92)
INSTALLATION & LOCATION: FORT BRAGG REGION NOS. 4 CENSUS: 3
PROJECT NO. & TITLE: 2936H SKY LIGHTS & CONTROLS @ BLDG 2936
FISCAL YEAR 95 DISCRETE PORTION NAME: LIGHTING
ANALYSIS DATE:
                02-03-95 ECONOMIC LIFE 10 YEARS PREPARED BY: JAH
1. INVESTMENT
A. CONSTRUCTION COST
                               25134.
                               1257.
B. SIOH
                                1257.
C. DESIGN COST
D. TOTAL COST (1A+1B+1C) $
E. SALVAGE VALUE OF EXISTING EQUIPMENT $
F. PUBLIC UTILITY COMPANY REBATE
G. TOTAL INVESTMENT (1D - 1E - 1F)
                                                         27647.
2. ENERGY SAVINGS (+) / COST (-)
DATE OF NISTIR 85-3273-X USED FOR DISCOUNT FACTORS OCT 1993
            UNIT COST SAVINGS ANNUAL $ DISCOUNT DISCOUNTED $/ MWH(1) MWH/YR(2) SAVINGS(3) FACTOR(4) SAVINGS(5)
            $/ MWH(1)
    FUEL
                                                      8.77
                                                                    22911.
   A. ELECT $ 34.95
                            75.
                                     $
$
0.
$
0.
$
0.
                                          2612.
                             0.
                                                      9.26
    B. DIST $ .00
                                                                       0.
                            0.
0.
                                                                       С.
                                                     10.08
    C. RESID $
                 .00
                                                     10.39
                                                                       0.
    D. NAT G $
                 .00
                                                                       0.
    E. COAL $
                 .00
                                                      9.39
             $ .00
                             0.
                                                      8.78
    F. LPG
                                                                       0.
                                                       8.49
                                                                   21539.
    M. DEMAND SAVINGS
    N. TOTAL
                            75.
                                          5149.
                                                                   44450.
3. NON ENERGY SAVINGS(+) / COST(-)
                                                               $
                                                                    477.
   A. ANNUAL RECURRING (+/-)
       (1) DISCOUNT FACTOR (TABLE A)
                                                     8.49
       (2) DISCOUNTED SAVING/COST (3A X 3A1)
                                                                  4050.
   B. NON RECURRING SAVINGS(+) / COSTS(-)
                            SAVINGS(+) YR DISCNT
                                                        DISCOUNTED
                              COST(-) OC FACTR SAVINGS(+), (1) (2) (3) COST(-)(4)
               ITEM
                                                         SAVINGS(+)/
                            $ 0.
   d. TOTAL
   C. TOTAL NON ENERGY DISCOUNTED SAVINGS(+)/COST(-)(3A2+3Bd4)$ 4050.
4. FIRST YEAR DOLLAR SAVINGS 2N3+3A+(3Bd1/(YRS ECONOMIC LIFE))$ 5626.
                                                                  4.91 YEARS
5. SIMPLE PAYBACK PERIOD (1G/4)
6. TOTAL NET DISCOUNTED SAVINGS (2N5+3C)
                                                             $
                                                                  48499.
                                                                 1.75
7. SAVINGS TO INVESTMENT RATIO
                                 (SIR) = (6 / 1G) =
    (IF < 1 PROJECT DOES NOT QUALIFY)
8. ADJUSTED INTERNAL RATE OF RETURN (AIRR):
                                                                 9.06 %
```

61,776 KWH/YR \$5,495 MR \$8,733 MR O KW (WITHOUT SKYLIGHTS) (WITH SKYLIGHTS) OF HANGAR FACILITIES AT SIMMONS ARMY AIRFIELD PER KWH PER KW **NET DEMAND SAVINGS NET DOLLAR SAVINGS** \$0.03495 FORT BRAGG LIMITED ENERGY STUDY 1,248 \$807 / YEAR \$323 / YEAR **ECO ENERGY CONSUMPTION** REVISED USAGE: HOURS/YEAR ELECTRIC COSTS: ENERGY CHARGE DEMAND CHARGE ECO 1: INTERIOR / EXTERIOR LIGHTING 02 FEBRUARY 1995 CONVENTIONAL SKY LIGHTS IN HANGARS \$484 N'EAR MAINTENANCE SAVINGS **ECO DEMAND** 3,120 HRYR = 1,248 HRYR = 154,440 KWH/YR 92,664 KWH/YR 49.5 KW **NET MAINTENANCE SAVINGS** \$47.00 / 20,000 HOURS * \$47.00 / 20,000 HOURS * 49,500 W 1 (1-YES, 0-NO) 3,120 BUILDING #: 2936 - HANGAR BASELINE ENERGY CONSUMPTION **NET ENERGY SAVINGS** 110 LAMPS @ WATTAGE CONTROLLED: PEAK USE: CURRENT USAGE: HOURS/YEAR BASELINE DEMAND

\$0 \$15,883

UOO

Estimate: BLDG 2936 Date: FEBRUARY 2, 1995
Description: CONVENTIONAL SKYLIGHT & CONTROLS
Project: HANGAR STUDY Bid Date: FEBRUARY 2, 1995 Project: Location: Job #: 94013.04 BLDG 2936 Sq. footage: City indx:Raleigh, NC Line # Description Manhours Matl Labor Equipment Sub Total CONVENTIONAL SKYLIGHT WITH 4" INSULATED CURBS 0060000001 720.00 SQ. FT (DOUBLE PANED) 0.00 19.56 2.41 0.00 \$14,083 \$1,735 0.09 0.00 22.06 Unit values \$65 \$0 \$15,883 Totals

\$14,083 \$1,735 \$65

0

| Line # | Description | on | | | | |
|---|---------------|-------------------|----------------|-------------|-----------------------|-------------------|
| | Manhours | Matl | Labor | Equipment | Sub | Total |
| ======================================= | ======== | ======== | ====== | ========= | ======= | ======== |
| 1611350023 | LOW VOLTAG | GE WIRE #1 | 18-4C | | 14.00 | CI.F |
| Unit values Totals | 1.23 17.22 | 15.40 \$216 | 34.00 \$476 | 0.00 \$0 | 0.00 | 49.40 \$692 |
| 1611750101 | LIGHTING (| CONTACTOR | | | 6.00 | E እ |
| Unit values Totals | 2.00 12.00 | 137.00 \$822 | 55.00 \$330 | 0.00 \$0 | 0.00 | 192.00 \$1,152 |
| 1611850101 | PHOTO SWIT | rch 50-500 | FC ADJU | STABLE | 4.00 | א כת א |
| Unit values Totals | 1.00 4.00 | 290.00 \$1,160 | 27.50 \$110 | 0.00 \$0 | 0.00 \$0 | 317.50 \$1,270 |
| 1611870101 | LOW VOLTAG | GE TRANS | L15V-24V | | 1 00 | D. |
| Unit values Totals | 0.67 0.67 | 64.00 \$64 | 18.35 \$18 | 0.00 \$0 | 1.00 0.00 \$0 | 82.35 \$82 |
| 1611870102 | SWITCHING | RELAYS | | | 0.00 | 77.3 |
| Unit values Totals | 0.50 4.00 | 11.30 \$90 | 13.75 \$110 | 0.00 \$0 | 8.00 0.00 \$0 | 25.05 \$200 |
| 1611950101 | 1/2" EMT | | | | 500.00 | T.D. |
| Unit values Totals | 0.05 25.00 | 0.38 \$190 | 1.29 \$645 | 0.00 \$0 | 500.00 0.00 \$0 | 1.67 \$835 |
| U16 ELECTRICAL | 63 | \$2,542 | \$1,689 | \$0 | \$0 | \$4,231 |

| Line # | Descripti | on | | | | |
|---|--|--------------|---------|-----------|-----|---|
| | Manhours | Matl | Labor | Equipment | Sub | Total |
| | | | | | | |
| ESTIMATE TOTAL | 63 | \$16,625 | \$3,424 | \$65 | \$0 | \$20,114 |
| SALES TAX MATL MARKUP | 5.00% 0.00% | \$831 \$0 | | | | |
| LABOR MARKUP EQUIPT MARKUP SUB MARKUP | 0.00% 0.00% 0.00% | | \$0 | \$0 | \$0 | |
| TOTAL BEFORE C CONTINGENCY BOND PROFIT | CONTINGENC 5.00% 5.00% 10.00% | \$17,456 | \$3,424 | \$65 | \$0 | \$20,945 \$1,047 \$1,047 \$2,095 |
| JOB TOTAL | | | | | | \$25,134 |

Estimate: BLDG 2936 Date: FEBRUARY 2, 1995
Description: CONVENTIONAL SKYLIGHT & CONTROLS
Project: HANGAR STUDY Bid Date: FEBRUARY 2, 1995
Location: BLDG 2936 Job #: 94013.04

Sq. footage:

JOB TOTAL

Job #: 94013.04 City indx:Raleigh, NC

| | SUMMARY | | | | | | |
|---|---------------------------------------|---------------------|--------------------|-------------|------------|---|--|
| | Manhours | Matl | Labor | Equipment | Sub | Total | |
| ============ | ======= | | | | | | |
| U00 U16 ELECTRICAL | 0 63 | \$14,083 \$2,542 | \$1,735 \$1,689 | \$65 \$0 | \$0 \$0 | \$15,883 \$4,231 | |
| TOTAL | 63 | \$16,625 | \$3,424 | \$65 | \$0 | \$20,114 | |
| SALES TAX MATL MARKUP LABOR MARKUP | 5.00% 0.00% 0.00% | \$831 \$0 | \$0 | | | | |
| EQUIPT MARKUP SUB MARKUP | 0.00% | | · | \$0 | \$0 | | |
| TOTAL BEFORE C CONTINGENCY BOND PROFIT | ONTINGENC 5.00% 5.00% 10.00% | \$17,456 | \$3,424 | \$65 | \$0 | \$20,945 \$1,047 \$1,047 \$2,095 | |
| JOB TOTAL | | | | | | \$25,134 | |

LIFE CYCLE COST ANALYSIS SUMMARY STUDY: 3007H
ENERGY CONSERVATION INVESTMENT PROGRAM (ECIP) LCCID FY95 (92) INSTALLATION & LOCATION: FORT BRAGG REGION NOS. 4 CENSUS: 3 PROJECT NO. & TITLE: 3007H SKY LIGHTS & CONTROLS @ BLDG 3007 FISCAL YEAR 95 DISCRETE PORTION NAME: LIGHTING 02-03-95 ECONOMIC LIFE 10 YEARS PREPARED BY: JAH ANALYSIS DATE: 1. INVESTMENT 26794. A. CONSTRUCTION COST \$ 1340. B. SIOH 1340. C. DESIGN COST D. TOTAL COST (1A+1B+1C) \$ E. SALVAGE VALUE OF EXISTING EQUIPMENT \$ 0. F. PUBLIC UTILITY COMPANY REBATE 0. \$ G. TOTAL INVESTMENT (1D - 1E - 1F) 29473. 2. ENERGY SAVINGS (+) / COST (-) DATE OF NISTIR 85-3273-X USED FOR DISCOUNT FACTORS OCT 1993 UNIT COST SAVINGS ANNUAL \$ DISCOUNT DISCOUNTED SAVINGS(3) FACTOR(4) SAVINGS(5) MWH/YR(2) FUEL \$/ MWH(1) 15492. 1767. 8.77 A. ELECT \$ 34.95 51. 9.26 0. 0. 0. B. DIST \$.00 0. 10.08 0. C. RESID \$.00 0. 0. 10.39 0. D. NAT G \$.00 0. .00 0. 0. 9.39 0. E. COAL \$ 8.78 0. 0. 0. F. LPG \$.00 2997. 8.49 25445. M. DEMAND SAVINGS 51. 4764. 40937. N. TOTAL 3. NON ENERGY SAVINGS(+) / COST(-) 267. A. ANNUAL RECURRING (+/-) (1) DISCOUNT FACTOR (TABLE A) 8.49 (2) DISCOUNTED SAVING/COST (3A X 3A1) 2267. B. NON RECURRING SAVINGS(+) / COSTS(-) SAVINGS(+) YR DISCNT COST(-) OC FACTR DISCOUNTED COST(-) OC (3) SAVINGS(+)/ ITEM COST(-)(4) 0. 0. d. TOTAL C. TOTAL NON ENERGY DISCOUNTED SAVINGS(+)/COST(-)(3A2+3Bd4)\$ 2267. 4. FIRST YEAR DOLLAR SAVINGS 2N3+3A+(3Bd1/(YRS ECONOMIC LIFE))\$ 5031. 5.86 YEARS 5. SIMPLE PAYBACK PERIOD (1G/4) \$ 43204. 6. TOTAL NET DISCOUNTED SAVINGS (2N5+3C) 1.47 7. SAVINGS TO INVESTMENT RATIO (SIR) = (6 / 1G) =(IF < 1 PROJECT DOES NOT QUALIFY) 7.12 % 8. ADJUSTED INTERNAL RATE OF RETURN (AIRR):

33,696 KWH/YR ₹ \$2,997 MR \$4,764 MR (WITHOUT SKYLIGHTS) (WITH SKYLIGHTS) 21 OF HANGAR FACILITIES AT SIMMONS ARMY AIRFIELD PER KWH PER KW NET DEMAND SAVINGS NET DOLLAR SAVINGS \$0.03495 FORT BRAGG LIMITED ENERGY STUDY 1,248 \$445 / YEAR \$178 / YEAR ECO ENERGY CONSUMPTION REVISED USAGE: HOURS/YEAR ELECTRIC COSTS: ENERGY CHARGE DEMAND CHARGE ECO 1: INTERIOR / EXTERIOR LIGHTING 02 FEBRUARY 1995 CONVENTIONAL SKY LIGHTS IN HANGARS \$267 NEAR **ECO DEMAND** MAINTENANCE SAVINGS 3,120 HRYR = 1,248 HRYR = 84,240 KWH/YR 50,544 KWH/YR ₹ **NET MAINTENANCE SAVINGS** \$38.00 / 24,000 HOURS • \$38.00 / 24,000 HOURS • 1 (1-YES, 0-NO) 27,000 W 3,120 BUILDING #: 3007 - HANGAR BASELINE ENERGY CONSUMPTION **NET ENERGY SAVINGS** 90 LAMPS @ 90 LAMPS @ WATTAGE CONTROLLED: PEAK USE: CURRENT USAGE : HOURS/YEAR BASELINE DEMAND

| | | | | ======== |
|--|---|---|----------|----------|
| Estimate: Description: Project: Location: Sq. footage: | BLDG 3007 CONVENTIONAL SKYI HANGAR STUDY BLDG 3007 | Date: FEBRUARY 2 JIGHT & CONTROLS Bid Date: FEBRUARY 2 Job #: 94013.04 City indx:Raleigh, N | , 1995 | |
| ======================================= | | | | |
| Line # | Description | | | |
| | Manhours Matl | Labor Equipment | Sub | Total |
| | ======================================= | :============== | ======== | ======== |
| 0060000001 | CONVENTIONAL SKYI (DOUBLE PANED) | | 780.00 | SQ. FT |
| Unit values | 0.00 19.50 | | | 22.06 |
| Totals | 0.00 \$15,25 | 7 \$1,880 \$70 | \$0 | \$17,207 |
| 000 | 0 \$15,25 | 7 \$1,880 \$70 | \$0 | \$17,207 |

| Line # | Descripti | on | | | | |
|-----------------------|---------------|-------------------|----------------|-------------|-------------|-------------------|
| | Manhours | Matl | Labor | Equipment | Sub | Total |
| ========== | ======== | | ======= | <u> </u> | | |
| 1611350023 | LOW VOLTA | GE WIRE #: | 18-4C | | 14.00 | CLF |
| Unit values Totals | 1.23 17.22 | 15.40 \$216 | 34.00 \$476 | 0.00 \$0 | 0.00 \$0 | 49.40 \$692 |
| 1611750101 | LIGHTING | CONTACTOR | | | 6.00 | EA. |
| Unit values Totals | 2.00 12.00 | 137.00 \$822 | 55.00 \$330 | 0.00 \$0 | 0.00 \$0 | 192.00 \$1,152 |
| 1611850101 | PHOTO SWI | TCH 50-50 | O FC ADJU | STABLE | 4.00 | EA. |
| Unit values Totals | 1.00 4.00 | 290.00 \$1,160 | 27.50 \$110 | 0.00 \$0 | 0.00 \$0 | 317.50 \$1,270 |
| 1611870101 | LOW VOLTA | GE TRANS | 115V-24V | | 1.00 | EA. |
| Unit values Totals | 0.67 0.67 | 64.00 \$64 | 18.35 \$18 | 0.00 | 0.00 | 82.35 \$82 |
| 1611870102 | SWITCHING | RELAYS | | | 8.00 | EA. |
| Unit values Totals | 0.50 4.00 | 11.30 \$90 | 13.75 \$110 | | 0.00 | 25.05 \$200 |
| 1611950101 | 1/2" EMT | 1 | | | 500.00 | LF |
| Unit values Totals | 0.05 25.00 | 0.38 \$190 | 1.29 \$645 | | 0.00 | 1.67 |
| U16 ELECTRICA | և 63 | \$2,542 | \$1,689 | \$0 | \$0 | \$4,231 |

| ======================================= | ======== | ======= | ======= | | | |
|---|---------------------------------------|--------------|------------|-----------|-----|---|
| Line # | Descripti | on | | | | |
| | Manhours | Matl | Labor | Equipment | Sub | Total |
| ======================================= | ====== | | | | | |
| ESTIMATE TOTAL | 63 | \$17,799 | \$3,569 | \$70 | \$0 | \$21,438 |
| SALES TAX MATL MARKUP | 5.00% | \$890 \$0 | ^ ^ | | | |
| LABOR MARKUP EQUIPT MARKUP SUB MARKUP | 0.00% 0.00% 0.00% | | \$0 | \$0 | \$0 | |
| TOTAL BEFORE CONTINGENCY BOND PROFIT | ONTINGENC 5.00% 5.00% 10.00% | \$18,689 | \$3,569 | \$70 | \$0 | \$22,328 \$1,116 \$1,116 \$2,233 |
| JOB TOTAL | | | | | | \$26,794 |

Estimate: BLDG 3007 Date: FEBRUARY 2, 1995
Description: CONVENTIONAL SKYLIGHT & CONTROLS
Project: HANGAR STUDY Bid Date: FEBRUARY 2, 1995
Location: BLDG 3007 Job #: 94013.04

Sq. footage:

Job #: 94013.04 City indx:Raleigh, NC

| Sq. footage: | City indx:Raleign, NC | | | | | ======== |
|---|--|---------------------|--------------------|-------------|------------|---|
| ============= | ======= S | UMMARY | | | | |
| | Manhours | Matl | Labor | Equipment | Sub | Total |
| =========== | ======= | | | | | |
| U00 U16 ELECTRICAL | 0 63 | \$15,257 \$2,542 | \$1,880 \$1,689 | \$70 \$0 | \$0 \$0 | \$17,207 \$4,231 |
| TOTAL | 63 | \$17,799 | \$3,569 | \$70 | \$0 | \$21,438 |
| SALES TAX MATL MARKUP LABOR MARKUP | 5.00% 0.00% 0.00% | \$890 \$0 | \$0 | \$0 | | |
| EQUIPT MARKUP SUB MARKUP | 0.00% 0.00% | | | \$0 | \$0 | |
| TOTAL BEFORE C CONTINGENCY BOND PROFIT | CONTINGENC 5.00% 5.00% 10.00% | \$18,689 | \$3,569 | \$70 | \$0 | \$22,328 \$1,116 \$1,116 \$2,233 |
| JOB TOTAL | | | | | | \$26,794 |

ENERGY CONSERVATION INVESTMENT PROGRAM (ECIP) LCCID FY95 (92) INSTALLATION & LOCATION: FORT BRAGG REGION NOS. 4 CENSUS: 3 PROJECT NO. & TITLE: 3262 SKY LIGHTS & LIGHTING PRODUCTS @ HANGARS FISCAL YEAR 95 DISCRETE PORTION NAME: LIGHTING ANALYSIS DATE: 02-03-95 ECONOMIC LIFE 10 YEARS PREPARED BY: JAH 1. INVESTMENT 85498. A. CONSTRUCTION COST \$ 4275. B. SIOH 4275. C. DESIGN COST D. TOTAL COST (1A+1B+1C) \$ 94048. E. SALVAGE VALUE OF EXISTING EQUIPMENT \$ F. PUBLIC UTILITY COMPANY REBATE 0. G. TOTAL INVESTMENT (1D - 1E - 1F) 94048. 2. ENERGY SAVINGS (+) / COST (-) DATE OF NISTIR 85-3273-X USED FOR DISCOUNT FACTORS OCT 1993 UNIT COST SAVINGS ANNUAL \$ DISCOUNT DISCOUNTED \$/ MWH(1) MWH/YR(2) SAVINGS(3) FACTOR(4) SAVINGS(5) FUEL 420. 8.77 A. ELECT \$ 34.95 14681. 128753. 9.26 B. DIST \$.00 0. 0. 0. C. RESID \$ 0. .00 0. 0. 10.08 0. D. NAT G \$ 0. 10.39 .00 0. 0. 9.39 E. COAL \$.00 0. \$ 0. \$ 9681. F. LPG \$.00 8.78 0. 0. M. DEMAND SAVINGS 8.49 82192. \$ 24362. 420. N. TOTAL 210945. 3. NON ENERGY SAVINGS(+) / COST(-) 1985. A. ANNUAL RECURRING (+/-) (1) DISCOUNT FACTOR (TABLE A) 8.49 (2) DISCOUNTED SAVING/COST (3A X 3A1) 16853. B. NON RECURRING SAVINGS(+) / COSTS(-) SAVINGS(+) YR DISCNT
COST(-) OC FACTR
(1) (2) (3) DISCOUNTED SAVINGS(+)/ ITEM COST(-)(4) d. TOTAL C. TOTAL NON ENERGY DISCOUNTED SAVINGS(+)/COST(-)(3A2+3Bd4)\$ 16853. 4. FIRST YEAR DOLLAR SAVINGS 2N3+3A+(3Bd1/(YRS ECONOMIC LIFE))\$ 5. SIMPLE PAYBACK PERIOD (1G/4) 3.57 YEARS \$ 227797. 6. TOTAL NET DISCOUNTED SAVINGS (2N5+3C) 7. SAVINGS TO INVESTMENT RATIO (SIR) = (6 / 1G) =2.42 (IF < 1 PROJECT DOES NOT QUALIFY) 8. ADJUSTED INTERNAL RATE OF RETURN (AIRR): 12.64 %

LIFE CYCLE COST ANALYSIS SUMMARY

STUDY: 3262

| JER KWH JER KWH MFIXT = FIXT | FORT BRAGG LIMITED ENERGY STUDY OF HANGAR FACILITIES AT SIMMONS ARMY AIRFIELD ECO 1: INTERIOR / EXTERIOR LIGHTING | ENERGY STUDY SIMMONS ARMY AIR | FIELD |
|--|---|--|--|
| 18 10,212 WATTS 10,212 WATTS 12,384 WATTS 12,384 WATTS 12,384 WATTS 12,384 WATTS 12,384 WATTS 13,000000000000000000000000000000000000 | INTERIOR LIGHTING: FLUORESC | EN 1934 ENT FIXTURE REPLACEMENT | |
| 92 W/FIXT = 0 WATTS 2 FOOT 2 LAMP U @ 58 W/FIXT = 92 W/FIXT = 10.212 WATTS 4 FOOT 4 FOOT 137 W/FIXT = 274 WATTS 34 3 LAMP @ 87 W/FIXT = 184 W/FIXT = 6,256 WATTS 8 FOOT 144 W/FIXT = 12,384 WATTS 8 FOOT 144 W/FIXT = 12,384 WATTS 8 FOOT 20,13 KW ECO ENERGY CONSUMPTION 29,13 KW ECO DEMAND SAVINGS 58,077 KWH/YR NET DEMAND SAVINGS NET DOLLAR SAVINGS | BUILDING #: 3262 - HANGAR AREA USE: HOURS/DAY DAYS/WEEK 7 | \$0.03495 \$9.25 | ER KWH ER KW |
| 2 LAMP @ 92 W/FIXT = 0 WATTS 4 FOOT 6 SB W/FIXT = 1 2 LAMP @ 92 W/FIXT = 10,212 WATTS 4 FOOT 58 W/FIXT = 2 LAMP @ 137 W/FIXT = 574 WATTS 8 FOOT 8 FOOT 4 LAMP @ 144 W/FIXT = 12,384 WATTS 8 FOOT 5 2 LAMP @ 144 W/FIXT = 12,384 WATTS 8 FOOT 1NE ENERGY CONSUMPTION 190,834 KWH/YR ECO ENERGY CONSUMPTION NET ENERGY SAVINGS 58,077 KWH/YR NET DEMAND SAVINGS | EXISTING FIXTURE DATA | REPLACEMENT FIXTURE DATA | |
| 2 LAMP @ 92 W/FIXT = 10,212 WATTS 4 FOOT 13 2 LAMP @ 58 W/FIXT = 137 W/FIXT = 12,384 W/FIXT = 12,384 WATTS 4 LAMP @ 134 W/FIXT = 12,384 W/FIXT = 12,384 WATTS 8 FOOT 86 2 LAMP @ 125 W/FIXT = 12,384 WATTS 1 2 LAMP @ 144 W/FIXT = 12,384 WATTS 8 FOOT 86 2 LAMP @ 125 W/FIXT = 12,384 WATTS 125 W/FIXT = 12,384 WATTS 1 2 LAMP @ 144 W/FIXT = 12,384 WATTS 12,384 WATTS 86 2 LAMP @ 125 W/FIXT = 12,384 WATTS NE DEMAND 29.13 KW ECO ENERGY CONSUMPTION NET ENERGY SAVINGS 58,077 KWH/YR NET DEMAND SAVINGS NET ENERGY SAVINGS NET DOLLAR SAVINGS | 2 LAMP U @ 92 W/FIXT = | 0 2 LAMP U @ | FIXT = 0 WATTS |
| S FOOT 8 FOOT 8 FOOT 8 FOOT 144 W/FIXT = 12,384 WATTS NE ENERGY CONSUMPTION 190,834 KWH/YR ECO ENERGY CONSUMPTION 29.13 KW ECO DEMAND S9.13 KW NET DEMAND SAVINGS NET DEMAND SAVINGS NET DELAR SAVINGS | 2 LAMP @ 92 W/FIXT = 3 LAMP @ 137 W/FIXT = 14 LAMP @ 184 W/FIXT = | 13 2 LAMP @ | FIXT = 6,554 WATTS FIXT = 2,958 WATTS FIXT = 0 WATTS |
| 190,834 KWH/YR ECO ENERGY CONSUMPTION 29.13 KW ECO DEMAND 58,077 KWH/YR NET DEMAND SAVINGS NET DOLLAR SAVINGS | 2 LAMP @ 144 W/FIXT = | 36 2 LAMP @ | FIXT = 10,750 WATTS |
| 19.13 KW ECO DEMAND GY SAVINGS 58,077 KWH/YR NET DEMAND SAVINGS NET DOLLAR SAVINGS | 190,834 | ECO ENERGY CONSUMPTION | 132,757 KWH/YR |
| 58,077 KWH/YR NET DEMAND SAVINGS NET DOLLAR SAVINGS | 29,13 | ЕСО DEMAND | 20.26 KW |
| | | NET DEMAND SAVINGS NET DOLLAR SAVINGS | \$984 IYR \$3,014 IYR |

(4' FLUORESCENT LAMPS)

\$59 / YEAR

6,570 HRMR=

MAINTENANCE SAVINGS

\$59 MEAR

NET MAINTENANCE SAVINGS

\$5.00 / 20,000 HOURS *

36 LAMPS @

212,285 KWH/YR 0 WATTS 32,400 WATTS 0 WATTS 0 WATTS 32.40 KW \$4,995 MR \$15,300 MR (METAL HALIDE) OF HANGAR FACILITIES AT SIMMONS ARMY AIRFIELD PER KWH PER KW 450 WATTS = WATTS = WATTS = WATTS = WATTS = **NET DEMAND SAVINGS NET DOLLAR SAVINGS** FORT BRAGG LIMITED ENERGY STUDY \$0.03495 REPLACEMENT FIXTURE DATA \$2,070 / YEAR \$1,112 / YEAR ECO ENERGY CONSUMPTION INTERIOR LIGHTING: LIGHTING REPLACEMENT ELECTRIC COSTS: ENERGY CHARGE DEMAND CHARGE ECO 1: INTERIOR / EXTERIOR LIGHTING 16 DECEMBER 1994 MH @ @ WH B @ HB B @ HB S @ \$958 N'EAR **ECO DEMAND** MAINTENANCE SAVINGS 00020 6,570 HR/YR = 6,570 HR/YR = 507,125 KWH/YR 294,840 KWH/YR 77.40 KW **NET MAINTENANCE SAVINGS** \$70.00 / 24,000 HOURS * \$47.00 / 20,000 HOURS * 0 WATTS 0 WATTS 0 WATTS 77,400 WATTS 0 WATTS 1 (1-YES, 0-NO) WATTS = WATTS = 1075 WATTS = WATTS = WATTS = BASELINE ENERGY CONSUMPTION **NET ENERGY SAVINGS** 18 3262 EXISTING FIXTURE DATA INCAND @ QUARTZ @ QUARTZ @ BUILDING #: BASELINE DEMAND AREA USE: HOURS/DAY DAYS/WEEK PEAK USE @@ } ¥

1,533 KWH/YR 0 WATTS 234 WATTS 0 WATTS 0 WATTS 0 WATTS Š (INCANDESCENT) (COMPACT FLUORESCENT) \$94 MR \$288 MR 0.23 OF HANGAR FACILITIES AT SIMMONS ARMY AIRFIELD PER KWH PER KW 13 W/FIXT = 13 W/FIXT = 18 W/FIXT = 26 W/F COMPACT FLUORESCENT REPLACEMENT **NET DEMAND SAVINGS NET DOLLAR SAVINGS** FORT BRAGG LIMITED ENERGY STUDY \$0.03495 \$552 / YEAR \$24 / YEAR ECO ENERGY CONSUMPTION INTERIOR LIGHTING: INCANDESCENT LAMP REPLACEMENT O LAMPS @ LAMPS @ O LAMPS @ C LAMPS ELECTRIC COSTS: ENERGY CHARGE DEMAND CHARGE **ECO 1: INTERIOR / EXTERIOR LIGHTING** \$528 NEAR ECO DEMAND MAINTENANCE SAVINGS 6,570 HRYYR = 6,570 HRYYR = **16 DECEMBER 1994** 7,076 KWH/YR 5,543 KWH/YR ž **NET MAINTENANCE SAVINGS** 1.08 \$3.50 / 750 HOURS * \$2.00 / 10,000 HOURS * 0 WATTS 0 WATTS 0 WATTS 1,080 WATTS 0 WATTS 1 (1-YES, 0-NO) 52 W/FIXT = 60 W/FIXT = 75 W/FIXT = 90 W/FIXT = 100 W/FIX BUILDING #: 3262 - HANGAR BASELINE ENERGY CONSUMPTION **NET ENERGY SAVINGS** 18 LAMPS @ 18 LAMPS @ EXISTING INCANDESCENTS AREA USE:_ LAMPS @ LAMPS @ LAMPS @ LAMPS @ LAMPS @ BASELINE DEMAND DAYS/WEEK PEAK USE HOURS/DAY 19 ----

105 KWH/YR (INCANDESCENT) (COMPACT FLUORESCENT) 0.01 KW \$12 MR \$45 MR REPLACEMENT SIGNS OF HANGAR FACILITIES AT SIMMONS ARMY AIRFIELD PER KWH PER KW # OF EXIT SIGNS: WATTAGE: NET DEMAND SAVINGS NET DOLLAR SAVINGS FORT BRAGG LIMITED ENERGY STUDY \$0.03495 \$123 / YEAR \$0 / YEAR ECO ENERGY CONSUMPTION INTERIOR LIGHTING: EXIT SIGN REPLACEMENT ELECTRIC COSTS: ENERGY CHARGE DEMAND CHARGE ECO 1: INTERIOR / EXTERIOR LIGHTING 16 DECEMBER 1994 \$123 NEAR MAINTENANCE SAVINGS **ECO DEMAND** 18 0 8,760 HR/YR = HR/YR = FLUORESCENT EXIT SIGNS # OF EXIT SIGNS: WATTAGE: 1,051 KWH/YR 946 KWH/YR 0.12 KW **NET MAINTENANCE SAVINGS** \$3.50 / 1,000 HOURS • / 10,000 HOURS • 8 4 BUILDING #; 3262 - HANGAR BASELINE ENERGY CONSUMPTION INCANDESCENT EXIT SIGNS **NET ENERGY SAVINGS** 4 LAMPS @__ WATTAGE: # OF EXIT SIGNS: BASELINE DEMAND

40,435 KWH/YR 32.4 KW \$3,596 MR \$5,716 MR (WITHOUT SKYLIGHTS) (WITH SKYLIGHTS) OF HANGAR FACILITIES AT SIMMONS ARMY AIRFIELD PER KWH PER KW **NET DEMAND SAVINGS** NET DOLLAR SAVINGS FORT BRAGG LIMITED ENERGY STUDY \$0.03495 1,248 \$528 / YEAR \$211 / YEAR **ECO ENERGY CONSUMPTION** REVISED USAGE: HOURS/YEAR ELECTRIC COSTS: ENERGY CHARGE 32,400 W (AFTER LIGHTING REPLACEMENT) 1 (1-YES, 0-NO) **ECO 1: INTERIOR / EXTERIOR LIGHTING** CONVENTIONAL SKY LIGHTS IN HANGARS \$317 N'EAR MAINTENANCE SAVINGS **ECO DEMAND** 3,120 HRYR = 1,248 HRYR = **02 FEBRUARY 1995** 101,088 KWH/YR 60,653 KWH/YR ₹ **NET MAINTENANCE SAVINGS** \$47.00 / 20,000 HOURS • \$47.00 / 20,000 HOURS • 3,120 3262 - HANGAR BASELINE ENERGY CONSUMPTION **NET ENERGY SAVINGS** WATTAGE CONTROLLED: PEAK USE: CURRENT USAGE: HOURS/YEAR BUILDING #: BASELINE DEMAND

FEBRUARY 2, 1995 LIGHTING UPGRADE Date: Estimate: LIGHTING PRODUCT UPGRADE Description: Bid Date: FEBRUARY 2, 1995 HANGAR LIGHTING Project: Job #: 94013.04 BLDG 3262 Location: City indx: Raleigh, NC Sq. footage: Description Line # Equipment Sub Manhours Matl _______ -----------DEMOLITION, 2X4 FLUORESCENT FIXTURES 0002000000 40.00 FIXTURE 13.35 0.00 0.00 13.35 0.00 0.49 Unit values \$0 \$0 \$534 \$0 \$534 19.60 Totals DEMOLITION, INCANDESCENT FIXTURES/EXIT SIGNS 0002010000 22.00 FIXTURE 0.00 0.00 7.10 0.00 7.10 0.26 Unit values \$0 \$156 \$0 5.72 \$0 \$156 Totals DEMOLITION, 1X4 FLUORESCENT FIXTURES 0002020000 193.00 FIXTURE 0.00 0.00 13.35 0.00 13.35 0.49 Unit values \$0 \$0 \$2,577 \$2,577 \$0 94.57 Totals DEMOLITION, HIGH BAY FIXTURES 0002030000 72.00 FIXTURE 27.50 0.00 0.00 27.50 0.00 1.00 Unit values \$1,980 \$0 \$0 \$1,980 \$0 72.00 Totals 2X4 2-32 WATT FLUORESCENT LAMPS, RECESSED 0010100000 4.00 FIXTURE MOUNTED 0.00 100.50 41.50 0.00 1.51 59.00 Unit values \$0 \$402 \$166 \$0 \$236 6.04 Totals 1X4 2-32 WATT FLUORESCENT LAMPS, RECESSED 0010200000 101.00 FIXTURE MOUNTED 0.00 0.00 82.50 51.00 31.50 1.14 Unit values \$3,182 \$0 \$8,333 \$0 \$5,151 115.14 Totals 1X4 2-32 WATT FLUORESCENT LAMPS, WALL MOUNTED 0010300000 6.00 FIXTURE 0.00 91.50 31.50 0.00 60.00 1.14 Unit values \$0 \$549 \$189 \$0 6.84 \$360 Totals 2X4 2-32 WATT FLUORESCENT LAMPS, RECESSED 0010500000 2.00 FIXTURE MOUNTED WITH REFLECTORS 75.00 0.00 0.00 116.50 41.50 1.51 Unit values \$0 \$233 \$0 \$150 \$83 Totals 3.02 1X8 2-59 WATT FLUORESCENT LAMPS, PENDANT 0010600000 86.00 FIXTURE

MOUNTED

| 02-Feb-95 | | MeansD | ata for Lot | us | | Page | |
|-----------------------|----------------|-------------------------------|------------------|--------------|---------------------|-------------------------------|--|
| Unit values Totals | 1.75 150.50 | 131.00 \$11,266 | 48.12 \$4,138 | 0.00 \$0 | 0.00 | 179.12 \$15,404 | |
| 0010700000 | LED EXIT | SIGN, RETR | OFIT KIT | | 4 00 | FIXTURE | |
| Unit values Totals | | 35.00 \$140 | | 0.00 \$0 | | 62.50 | |
| 0011000000 | 400 WATT | METAL HAL | IDE FIXTURE | Ξ | 70 00 | 77110117 | |
| Unit values Totals | 2.00 144.00 | 207.00 \$14,904 | 55.00 \$3,960 | 0.00 \$0 | 0.00 | FIXTURE 262.00 \$18,864 | |
| 0011100000 | | | UORESCENT E | FIXTURE | | | |
| Unit values Totals | | | 3.44 \$62 | | 0.00 | FIXTURE 28.94 \$521 | |
| 0011400000 | | TOTAL DESTROY | mon. | MPS, SURFACE | 2 00 | ETYMIDE | |
| Unit values Totals | 1.51 | TTH REFLEC' 79.00 \$158 | 41.50 | 0.00 \$0 | 2.00 0.00 \$0 | | |

Description Line # Labor Equipment Sub Total Manhours Matl \$0 \$0 \$50,044 \$17,220 \$32,824 627 UOO \$0 \$0 \$50,044 \$17,220 \$32,824 627 ESTIMATE TOTAL \$1,641 5.00% SALES TAX 0.00% \$0 MATL MARKUP \$0 0.00% LABOR MARKUP \$0 0.00% EQUIPT MARKUP \$0 0.00% SUB MARKUP \$0 \$0 \$51,685 \$17,220 TOTAL BEFORE CONTINGENC \$34,465 \$2,584 5.00% CONTINGENCY \$2,584 \$5,169 5.00% BOND 10.00% PROFIT \$62,022 JOB TOTAL

______ Estimate: LIGHTING UPGRADE Date: FEBRUARY 2, 1995
Description: LIGHTING PRODUCT UPGRADE
Project: HANGAR LIGHTING Bid Date: FEBRUARY 2, 1995

BLDG 3262

Location:

Job #: 94013.04

Sq. footage:

City indx:Raleigh, NC

| | \RY | |
|--|-----|--|
| | | |
| | | |

| | _ | | | | | |
|---|--|----------------|----------|-----------|-----|---|
| | Manhours | Matl | Labor | Equipment | Sub | Total |
| 20 | | ======= | | | | |
| U00 | 627 | \$32,824 | \$17,220 | \$0 | \$0 | \$50,044 |
| TOTAL | 627 | \$32,824 | \$17,220 | \$0 | \$0 | \$50,044 |
| SALES TAX MATL MARKUP | 5.00% 0.00% | \$1,641 \$0 | ¢ o | | | |
| LABOR MARKUP EQUIPT MARKUP SUB MARKUP | 0.00% 0.00% 0.00% | | \$0 | \$0 | \$0 | |
| TOTAL BEFORE CONTINGENCY BOND PROFIT | CONTINGENC 5.00% 5.00% 10.00% | \$34,465 | \$17,220 | \$0 | \$0 | \$51,685 \$2,584 \$2,584 \$5,169 |
| JOB TOTAL | | | | | | \$62,022 |

UOO

Estimate: BLDG 3262 Date: FEBRUARY 2, 1995
Description: CONVENTIONAL SKYLIGHT & CONTROLS
Project: HANGAR STUDY Bid Date: FEBRUARY 2, 1995
Location: BLDG 3262 Job #: 94013.04
Sq. footage: City indx:Raleigh, NC

Line # Description

| | Manhours | Matl | Labor H | Equipment | Sub | Total |
|-------------|------------|------------|-----------------|-------------|--------------|----------|
| ========= | | | | | ======: | |
| 006000001 | COMMENTA | NAT CENTEC | 11M 1.7TM11 / 1 | | CUDDA | |
| 0060000001 | (DOUBLE P. | | ni wiin 4 | ' INSULATED | CURBS 660.00 | SQ. FT |
| Unit values | 0.00 | 19.56 | 2.41 | 0.09 | 0.00 | 22.06 |
| Totals | 0.00 | \$12,910 | \$1,591 | \$59 | \$0 | \$14,560 |
| | | | | | | |

0 \$12,910 \$1,591 \$59 \$0 \$14,560

| Line # | Description | on | | | | |
|-----------------------|---------------|-------------------|----------------|-------------|-----------------------|-------------------|
| ~ - <u>-</u> | Manhours | Matl | Labor | Equipment | Sub | Total |
| | 2====== | | | | | |
| 1611350023 | LOW VOLTAG | GE WIRE #1 | 18-4C | | 14.00 | CLF |
| Unit values Totals | 1.23 17.22 | 15.40 \$216 | 34.00 \$476 | 0.00 \$0 | 0.00 \$0 | 49.40 \$692 |
| 1611750101 | LIGHTING (| CONTACTOR | | | 6.00 | EA. |
| Unit values Totals | 2.00 12.00 | 137.00 \$822 | 55.00 \$330 | 0.00 \$0 | 0.00 | 192.00 \$1,152 |
| 1611850101 | PHOTO SWIT | гсн 50-500 | FC ADJU | STABLE | 4.00 | T-7 N |
| Unit values Totals | 1.00 4.00 | 290.00 \$1,160 | 27.50 \$110 | 0.00 \$0 | 0.00 | 317.50 \$1,270 |
| 1611870101 | LOW VOLTA | GE TRANS 1 | L15V-24V | | | |
| Unit values Totals | 0.67 0.67 | 64.00 \$64 | 18.35 \$18 | 0.00 \$0 | 1.00 0.00 \$0 | 82.35 \$82 |
| 1611870102 | SWITCHING | RELAYS | | | 0.00 | 77 |
| Unit values Totals | 0.50 4.00 | 11.30 \$90 | 13.75 \$110 | 0.00 \$0 | 8.00 0.00 \$0 | 25.05 \$200 |
| 1611950101 | 1/2" EMT | | | | 500.00 | 7 m |
| Unit values Totals | 0.05 25.00 | 0.38 \$190 | 1.29 \$645 | 0.00 \$0 | 500.00 0.00 \$0 | 1.67 \$835 |
| U16 ELECTRICAL | 63 | \$2,542 | \$1,689 | \$0 | \$0 | \$4,231 |

TOTAL BEFORE CONTINGENC

5.00%

5.00%

10.00%

CONTINGENCY

BOND

PROFIT

JOB TOTAL

\$0

\$19,564 \$978

\$978

\$1,956

\$23,476

\$59

______ Description Manhours Matl Labor Equipment Sub Total 63 \$15,452 \$3,280 \$59 \$0 \$18,791 ESTIMATE TOTAL \$773 SALES TAX 5.00% 0.00% \$0 MATL MARKUP 0.00% \$0 LABOR MARKUP EQUIPT MARKUP 0.00% \$0 \$0 SUB MARKUP 0.00%

\$16,225 \$3,280

Estimate: BLDG 3262 Date: FEBRUARY 2, 1995
Description: CONVENTIONAL SKYLIGHT & CONTROLS
Project: HANGAR STUDY Bid Date: FEBRUARY 2, 1995
Location: BLDG 3262 Job #: 94013.04
Sq. footage: City indx:Raleigh, NC

| | S | UMMARY | | | | |
|--|--------------------------------------|---------------------|--------------------|-------------|------------|---------------------------------------|
| | Manhours | Matl | Labor | Equipment | Sub | Total |
| | | | - | | =====: | ======= |
| U00 U16 ELECTRICAL | 0 63 | \$12,910 \$2,542 | \$1,591 \$1,689 | \$59 \$0 | \$0 \$0 | \$14,560 \$4,231 |
| TOTAL | 63 | \$15,452 | \$3,280 | \$59 | \$0 | \$18,791 |
| SALES TAX MATL MARKUP LABOR MARKUP | 5.00% 0.00% 0.00% | \$773 \$0 | \$0 | | | |
| EQUIPT MARKUP SUB MARKUP | 0.00% | | * - | \$0 | \$0 | |
| TOTAL BEFORE CO CONTINGENCY BOND PROFIT | NTINGENC 5.00% 5.00% 10.00% | \$16,225 | \$3,280 | \$59 | \$0 | \$19,564 \$978 \$978 \$1,956 |
| JOB TOTAL | | | | | | \$23,476 |

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LIFE CYCLE COST ANALYSIS SUMMARY STUDY: 3354
ENERGY CONSERVATION INVESTMENT PROGRAM (ECIP) LCCID FY95 (92)
INSTALLATION & LOCATION: FORT BRAGG REGION NOS. 4 CENSUS: 3
PROJECT NO. & TITLE: 3354 SKY LIGHTS & LIGHTING PRODUCTS @ HANGARS
FISCAL YEAR 95 DISCRETE PORTION NAME: LIGHTING
ANALYSIS DATE: 02-03-95 ECONOMIC LIFE 10 YEARS PREPARED BY: JAH
1. INVESTMENT
A. CONSTRUCTION COST $
                              38572.
B. SIOH
C. DESIGN COST
                             1929.
                              1929.
D. TOTAL COST (1A+1B+1C) $ 42429.
E. SALVAGE VALUE OF EXISTING EQUIPMENT $
                                              0.
F. PUBLIC UTILITY COMPANY REBATE
G. TOTAL INVESTMENT (1D - 1E - 1F)
                                                       42429.
2. ENERGY SAVINGS (+) / COST (-)
DATE OF NISTIR 85-3273-X USED FOR DISCOUNT FACTORS OCT 1993
            UNIT COST SAVINGS ANNUAL $ DISCOUNTED
            $/ MWH(1) MWH/YR(2) SAVINGS(3) FACTOR(4) SAVINGS(5)
    FUEL
    A. ELECT $ 34.95
                                        2996.
                           86.
                                                    8.77
                                                                 26277.
    B. DIST $ .00
                            0.
                                          0.
                                                    9.26
                                                                 0.
    C. RESID $
                .00
                                            0.
                                                    10.08
                            0.
                                                                     0.
                                   $ 0.
$ 0.
$ 0.
$ 4198.
$ 7194.
               .00
                            0.
    D. NAT G $
                            0.
                                                   10.39
                                                                    0.
                .00
    E. COAL $
                                                    9.39
                                                                     0.
    F. LPG $
                                                     8.78
                .00
                                                            $ 0.
$ 35641.
                                                    8.49
    M. DEMAND SAVINGS
                            86.
    N. TOTAL
                                                                61918.
3. NON ENERGY SAVINGS(+) / COST(-)
                                                            $ 849.
   A. ANNUAL RECURRING (+/-)
      (1) DISCOUNT FACTOR (TABLE A)
                                                  8.49
       (2) DISCOUNTED SAVING/COST (3A X 3A1)
                                                            $ 7208.
  B. NON RECURRING SAVINGS(+) / COSTS(-)
                           SAVINGS(+) YR DISCNT DISCOUNTED

COST(-) OC FACTR SAVINGS(+),

(1) (2) (3) COST(-)(4)
                                                       SAVINGS(+)/
              ITEM
   d. TOTAL
                           $ 0.
  C. TOTAL NON ENERGY DISCOUNTED SAVINGS(+)/COST(-)(3A2+3Bd4)$ 7208.
4. FIRST YEAR DOLLAR SAVINGS 2N3+3A+(3Bd1/(YRS ECONOMIC LIFE))$
5. SIMPLE PAYBACK PERIOD (1G/4)
                                                              5.28 YEARS
                                                           $ 69126.
6. TOTAL NET DISCOUNTED SAVINGS (2N5+3C)
7. SAVINGS TO INVESTMENT RATIO
                                    (SIR) = (6 / 1G) =
                                                              1.63
   (IF < 1 PROJECT DOES NOT QUALIFY)
8. ADJUSTED INTERNAL RATE OF RETURN (AIRR):
                                                              8.26 %
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| FORT | BRAGG LIMITE | FORT BRAGG LIMITED ENERGY STUDY | |
|--|--|---|--|
| OF HANGAR | FACILITIES AT SIMMONS , eco 1: INTERIOR / EXTERIOR LIGHTING 16 DECEMBER 1994 | OF HANGAR FACILITIES AT SIMMONS ARMY AIRFIELD ECO 1: INTERIOR / EXTERIOR LIGHTING 16 DECEMBER 1994 | KFIELD |
| ·N | INTERIOR LIGHTING: FLUORESCENT FIXTURE REPLACEMENT | ENT FIXTURE REPLACEMENT | |
| BUILDING #: 3354 - HANGAR AREA USE: HOURS/DAY DAYS/WEEK | | ELECTRIC COSTS: ENERGY CHARGE \$0.03495 DEMAND CHARGE \$9.25 | PER KWH PER KW |
| EXISTING FIXTURE DATA | | REPLACEMENT FIXTURE DATA | |
| 2 LAMP U @ 92 W/FIXT = | 0 WATTS | 2 FOOT 0 2 LAMP U @ 58 V | 58 W/FIXT = 0 WATTS |
| 4 FOOT 131 2 LAMP @ 92 W/FIXT = 12 3 LAMP @ 137 W/FIXT = 12 4 LAMP @ 184 W/FIXT = | 12,052 WATTS 0 WATTS 0 WATTS | 4 FOOT 131 2 LAMP @ 58 V 0 3 LAMP @ 87 V 0 4 LAMP @ 118 V | 58 W/FIXT = 7,598 WATTS 87 W/FIXT = 0 WATTS 118 W/FIXT = 0 WATTS |
| 8 FOOT 25 2 LAMP @ 144 W/FIXT = 3 | 3,600 WATTS | 8 FOOT 25 2 LAMP @ 125 v | 125 W/FIXT = 3,125 WATTS |
| BASELINE ENERGY CONSUMPTION | 40,695 KWH/YR | ECO ENERGY CONSUMPTION | 27,880 KWH/YR |
| BASELINE DEMAND | 15.65 KW | ECO DEMAND | 10.72 KW |
| NET ENERGY SAVINGS | 12,815 KWH/YR | NET DEMAND SAVINGS NET DOLLAR SAVINGS | \$547 MR \$995 MR |
| | MAINTENANCE SAVINGS | E SAVINGS | |
| 0 LAMPS @ \$5.00 / 2 | .00 / 20,000 HOURS * | HR/YR = \$0 / YEAR (| (4' FLUORESCENT LAMPS) |

\$0 MEAR

NET MAINTENANCE SAVINGS

2,111 KWH/YR 0 WATTS 0 WATTS 0 WATTS 812 WATTS 0.81 KW \$143 MR \$260 MR (INCANDESCENT) (FLUORESCENT) 14 2 LAMP @ 58 W/FIXT = (FOUR FOOT FLUORESCENT FIXTURES) OF HANGAR FACILITIES AT SIMMONS ARMY AIRFIELD PER KWH PER KW 450 WATTS = WATTS = WATTS = **NET DEMAND SAVINGS NET DOLLAR SAVINGS** \$0.03495 FORT BRAGG LIMITED ENERGY STUDY \$340 / YEAR \$18 / YEAR REPLACEMENT FIXTURE DATA ECO ENERGY CONSUMPTION ELECTRIC COSTS; ENERGY CHARGE DEMAND CHARGE INTERIOR LIGHTING: LIGHTING REPLACEMENT MH @ MH @ HPS @ **ECO 1: INTERIOR / EXTERIOR LIGHTING** \$322 NEAR ECO DEMAND MAINTENANCE SAVINGS 000 2,600 HR/YR = 2,600 HR/YR = 16 DECEMBER 1994 5,460 KWH/YR 3,349 KWH/YR Š **NET MAINTENANCE SAVINGS** \$3.50 /750 HOURS* \$5.00 / 20,000 HOURS* 0 WATTS 0 WATTS 0 WATTS 0 WATTS 2,100 WATTS 1 (1-YES, 0-NO) WATTS = WATTS = 75 WATTS = WATTS = BUILDING #: 3354 - HANGAR BASELINE ENERGY CONSUMPTION **NET ENERGY SAVINGS** 28 LAMPS @ 28 LAMPS @ 5 5 EXISTING FIXTURE DATA INCAND @ QUARTZ @ QUARTZ @ BASELINE DEMAND AREA USE: HOURS/DAY DAYSWEEK PEAK USE 28

702 KWHIYR 270 WATTS 0 WATTS 0 WATTS 0 WATTS (INCANDESCENT) (COMPACT FLUORESCENT) Ž \$95 MR \$173 MR 0.27 OF HANGAR FACILITIES AT SIMMONS ARMY AIRFIELD PER KWH PER KW 13 W/FIXT = 13 W/FIXT = 18 W/FIXT = 26 W/F COMPACT FLUORESCENT REPLACEMENT NET DEMAND SAVINGS NET DOLLAR SAVINGS \$0.03495 FORT BRAGG LIMITED ENERGY STUDY \$182 / YEAR \$8 / YEAR ECO ENERGY CONSUMPTION INTERIOR LIGHTING: INCANDESCENT LAMP REPLACEMENT LAMPS @ LAMPS @ LAMPS @ LAMPS @ ELECTRIC_COSTS; ENERGY CHARGE DEMAND CHARGE ECO 1: INTERIOR / EXTERIOR LIGHTING 16 DECEMBER 1994 \$174 MEAR ECO DEMAND MAINTENANCE SAVINGS 00000 2,600 HR/YR = 2,600 HR/YR = 2,925 KWH/YR 2,223 KWH/YR ž **NET MAINTENANCE SAVINGS** \$3.50 / 750 HOURS * 0 WATTS 0 WATTS 1,125 WATTS 0 WATTS 10 5 1 (1-YES, 0-NO) 52 W/FIXT = 60 W/FIXT = 75 W/FIXT = 90 W/FIXT = 100 W/FIX BUILDING #: 3354 - HANGAR BASELINE ENERGY CONSUMPTION **NET ENERGY SAVINGS** 15 LAMPS @ 15 LAMPS @ EXISTING INCANDESCENTS BASELINE DEMAND AREA USE:_ HOURS/DAY LAMPS@ LAMPS@ LAMPS@ LAMPS@ DAYSWEEK **PEAK USE**

44,895 KWH/YR \$3,413 MR \$5,767 MR 30.75 KW (WITHOUT SKYLIGHTS) (WITHOUT SKYLIGHTS) (WITH SKYLIGHTS) (WITH SKYLIGHTS) OF HANGAR FACILITIES AT SIMMONS ARMY AIRFIELD PER KWH PER KW **NET DEMAND SAVINGS NET DOLLAR SAVINGS** \$0.03495 1,460 FORT BRAGG LIMITED ENERGY STUDY \$237 / YEAR \$352 / YEAR \$95 / YEAR \$141 / YEAR ECO ENERGY CONSUMPTION REVISED USAGE: HOURS/YEAR ELECTRIC_COSTS: ENERGY CHARGE DEMAND CHARGE ECO 1: INTERIOR / EXTERIOR LIGHTING 02 FEBRUARY 1995 CONVENTIONAL SKY LIGHTS IN HANGARS \$353 N'EAR **ECO DEMAND** MAINTENANCE SAVINGS 3,650 HR/YR = 7,650 HR/YR = 1,460 HR/YR = 1, 67,343 KWH/YR 112,238 KWH/YR ₹ **NET MAINTENANCE SAVINGS** \$38.00 / 24,000 HOURS * \$47.00 / 20,000 HOURS * \$38.00 / 24,000 HOURS * \$47.00 / 20,000 HOURS * \$48.00 / 20,000 HOURS * \$40.00 / 20,000 / 30.75 1 (1-YES, 0-NO) 30,750 W 3,650 3354 - HANGAR **NET ENERGY SAVINGS** BASELINE ENERGY CONSUMPTION 41 LAMPS @ 41 LAMPS @ 41 LAMPS @ 41 LAMPS @ WATTAGE CONTROLLED: PEAK USE: CURRENT USAGE: HOURS/YEAR BUILDING #: BASELINE DEMAND

| | | | | | ======== | |
|---|---|-------------------|--|---|----------------|------------------|
| by. Loovage. | LIGHTING I LIGHTING I HANGAR LIC BLDG 3354 | PRODUCT U | Date: PGRADE Bid Date: Job #: Citv indx: | FEBRUARY 2, FEBRUARY 2, 94013.04 Raleigh, NC | 1995 | |
| ======================================= | | | | | | |
| Line # | Description | on | | | | |
| | Manhours | Matl | Labor | Equipment | Sub | Total |
| ============== | | | | | | |
| 0002010000 | DEMOLITION | , incand | | XTURES/EXIT | SIGNS 43.00 | FIXTURE |
| Unit values Totals | 0.26 11.18 | | 7.10 \$305 | 0.00 \$0 | 0.00 \$0 | 7.10 \$305 |
| 0002020000 | DEMOLITION | N, 1X4 FL | UORESCENT | FIXTURES | 170.00 | FIXTURE |
| Unit values Totals | | 0.00 \$0 | 13.35 \$2,270 | 0.00 \$0 | 0.00 | 13.35 \$2,270 |
| 001000000 | 1X4 2-32 MOUNTED | WATT FLU | ORESCENT | LAMPS, SURFA | CE 14.00 | FIXTURE |
| Unit values Totals | 1.14 | 60.00 \$840 | 31.50 \$441 | | 0.00 | |
| 0010400000 | 1X4 2-32 MOUNTED | | | LAMPS, PENDA | NT 131.00 | FIXTURE |
| Unit values Totals | 1.14 149.34 | 39.00 \$5,109 | 31.50 \$4,127 | 0.00 \$0 | 0.00 \$0 | 70.50 \$9,236 |
| 0010600000 | 1X8 2-59 MOUNTED | WATT FLU | ORESCENT : | LAMPS, PENDA | NT 25.00 | FIXTURE |
| Unit values Totals | 1.75 43.75 | 131.00 \$3,275 | 48.12 \$1,203 | 0.00 \$0 | 0.00 \$0 | |
| 0011200000 | 18 WATT (| | LUORESCEN' | | | FIXTURE |
| Unit values Totals | 0.13 1.95 | 25.50 | 3.44 \$52 | 0.00 \$0 | 0.00 | |
| UOO | 306 | \$9,607 | \$8,398 | \$0 | \$0 | \$18,005 |

\$22,182

JOB TOTAL

5.00% SALES TAX \$0 0.00% MATL MARKUP \$0 0.00% LABOR MARKUP \$0 EQUIPT MARKUP 0.00% \$0 SUB MARKUP 0.00% \$0 \$10,087 \$8,398 \$0 \$18,485 TOTAL BEFORE CONTINGENC \$924 5.00% CONTINGENCY \$924 \$1,849 5.00% BOND 10.00% PROFIT

Estimate: LIGHTING UPGRADE Date: FEBRUARY 2, 1995
Description: LIGHTING PRODUCT UPGRADE
Project: HANGAR LIGHTING Bid Date: FEBRUARY 2, 1995
Location: BLDG 3354 Job #: 94013.04

Job #: 94013.04 City indx:Raleigh, NC

Sq. footage:

| | S | UMMARY | | | | |
|--|--|--------------|---------|-----------|---------------------------------------|---------------------------------------|
| | Manhours | Matl | Labor | Equipment | Sub | Total |
| | | | | | · · · · · · · · · · · · · · · · · · · | |
| 000 | 306 | \$9,607 | \$8,398 | \$0 | \$0 | \$18,005 |
| TOTAL | 306 | \$9,607 | \$8,398 | \$0 | \$0 | \$18,005 |
| SALES TAX MATL MARKUP LABOR MARKUP | 5.00% 0.00% 0.00% | \$480 \$0 | \$0 | | | |
| EQUIPT MARKUP SUB MARKUP | | | , | \$0 | \$0 | |
| TOTAL BEFORE CONTINGENCY BOND PROFIT | CONTINGENC 5.00% 5.00% 10.00% | \$10,087 | \$8,398 | \$0 | \$0 | \$18,485 \$924 \$924 \$1,849 |
| JOB TOTAL | | | | | | \$22,182 |

\$0 \$9,928

Estimate: BLDG 3354 Date: FEBRUARY 2, 1995
Description: CONVENTIONAL SKYLIGHT & CONTROLS
Project: HANGAR STUDY Bid Date: FEBRUARY 2, 1995
Location: BLDG 3354 Job #: 94013.04
Sq. footage: City indx:Raleigh, NC

UOO

| Line # | Description |
|--------|-------------|
|--------|-------------|

| | Manhours | Matl | Labor E | quipment | Sub | Total |
|-----------------------|-----------------------|------------------|-----------------|--------------|------|------------------|
| | | | | | | -======= |
| 0060000001 | CONVENTION (DOUBLE PA | | GHT WITH 4" | INSULATED | | SQ. FT |
| Unit values Totals | 0.00 | 19.56 \$8,802 | 2.41 \$1,085 | 0.09 \$41 | 0.00 | 22.06 \$9,928 |
| | | | | | | |

0 \$8,802 \$1,085 \$41

| ========== | | ======= | ======= | ========= | ======= | ======== |
|-----------------------|---------------|-------------------|----------------|-------------|-----------------------|--------------------------|
| Line # | Description | on | | | | |
| WEEZ-EW-W | Manhours | Matl | Labor | Equipment | Sub | Total |
| | | | | | | |
| 1611350023 | LOW VOLTA | GE WIRE #1 | L8-4C | | | |
| Unit values Totals | 1.23 12.30 | 15.40 \$154 | 34.00 \$340 | 0.00 | 10.00 0.00 \$0 | CLF 49.40 \$494 |
| 1611750101 | LIGHTING (| CONTACTOR | | | | |
| Unit values Totals | 2.00 6.00 | 137.00 \$411 | 55.00 \$165 | 0.00 \$0 | 3.00 0.00 \$0 | EA. 192.00 \$576 |
| 1611850101 | PHOTO SWIT | CH 50-500 | FC ADJUS | STABLE | | |
| Unit values Totals | 1.00 4.00 | 290.00 \$1,160 | 27.50 \$110 | 0.00 \$0 | 4.00 0.00 \$0 | EA. 317.50 \$1,270 |
| 1611870101 | LOW VOLTAG | E TRANS 1 | 15V-24V | | | |
| Unit values Totals | 0.67 0.67 | 64.00 \$64 | 18.35 \$18 | 0.00 \$0 | 1.00 0.00 \$0 | EA. 82.35 \$82 |
| 1611870102 | SWITCHING | RELAYS | | | | |
| Unit values Totals | 0.50 4.00 | 11.30 \$90 | 13.75 \$110 | 0.00 \$0 | 8.00 0.00 \$0 | EA. 25.05 \$200 |
| 1611950101 | 1/2" EMT | | | | | |
| Unit values Totals | 0.05 17.00 | 0.38 \$129 | 1.29 \$439 | 0.00 \$0 | 340.00 0.00 \$0 | LF 1.67 \$568 |
| U16 ELECTRICAL | 44 | \$2,008 | \$1,182 | \$0 | \$0 | \$3,190 |

| Line # | Description | | | | | | | | |
|---|--------------------------|----------|---------|-----------|-----|---------------------------------------|--|--|--|
| ======================================= | Manhours | Matl | Labor | Equipment | Sub | Total | | | |
| | | | | | | ======= | | | |
| ESTIMATE TOTAL | 44 | \$10,810 | \$2,267 | \$41 | \$0 | \$13,118 | | | |
| SALES TAX MATL MARKUP | 5.00% 0.00% | \$541 | | | | 7-0,220 | | | |
| LABOR MARKUP EQUIPT MARKUP | 0.00% | \$0 | \$0 | | | | | | |
| SUB MARKUP | 0.00% | | | \$0 | \$0 | | | | |
| TOTAL BEFORE CO | NTINGENC | \$11,351 | 62 267 | . | | | | | |
| CONTINGENCY BOND PROFIT | 5.00% 5.00% 10.00% | V11,331 | \$2,267 | \$41 | \$0 | \$13,659 \$683 \$683 \$1,366 | | | |
| JOB TOTAL | | | | | | \$16,390 | | | |

Estimate: BLDG 3354 Date: FEBRUARY 2, 1995
Description: CONVENTIONAL SKYLIGHT & CONTROLS

Project: HANGAR STUDY Bid Date: FEBRUARY 2, 1995 Location: BLDG 3354 Job #: 94013.04

Sq. footage:

City indx:Raleigh, NC

SUMMARY

| | Manhours | Matl | Labor | Equipment | Sub | Total |
|--|---------------------------------------|--------------------|--------------------|-------------|------------|---------------------------------------|
| | | | | | | |
| U00 U16 ELECTRICAL | 0 44 | \$8,802 \$2,008 | \$1,085 \$1,182 | \$41 \$0 | \$0 \$0 | \$9,928 \$3,190 |
| TOTAL | 44 | \$10,810 | \$2,267 | \$41 | \$0 | \$13,118 |
| SALES TAX MATL MARKUP LABOR MARKUP | 5.00% 0.00% 0.00% | \$541 \$0 | \$0 | | | |
| EQUIPT MARKUP SUB MARKUP | 0.00% 0.00% | | | \$0 | \$0 | |
| TOTAL BEFORE CO CONTINGENCY BOND PROFIT | ONTINGENC 5.00% 5.00% 10.00% | \$11,351 | \$2,267 | \$41 | \$0 | \$13,659 \$683 \$683 \$1,366 |
| JOB TOTAL | | | | | | \$16,390 |

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LIFE CYCLE COST ANALYSIS SUMMARY STUDY: 3637
ENERGY CONSERVATION INVESTMENT PROGRAM (ECIP) LCCID FY95 (92)
INSTALLATION & LOCATION: FORT BRAGG REGION NOS. 4 CENSUS: 3
PROJECT NO. & TITLE: 3637 SKY LIGHTS & LIGHTING PRODUCTS @ HANGARS
FISCAL YEAR 95 DISCRETE PORTION NAME: LIGHTING
ANALYSIS DATE: 02-03-95 ECONOMIC LIFE 10 YEARS PREPARED BY: JAH
1. INVESTMENT
A. CONSTRUCTION COST $ 37974.
                                    1899.
B. SIOH
C. DESIGN COST
S
D. TOTAL COST (1A+1B+1C) $ 41771.
E. SALVAGE VALUE OF EXISTING EQUIPMENT $
F. PUBLIC UTILITY COMPANY REBATE
                                                                      41771.
G. TOTAL INVESTMENT (1D - 1E - 1F)
2. ENERGY SAVINGS (+) / COST (-)
DATE OF NISTIR 85-3273-X USED FOR DISCOUNT FACTORS OCT 1993
                UNIT COST SAVINGS ANNUAL $ DISCOUNT DISCOUNTED $/ MWH(1) MWH/YR(2) SAVINGS(3) FACTOR(4) SAVINGS(5)
     FUEL

      278.
      $ 9701.
      8.77

      0.
      $ 0.
      9.26

      0.
      $ 0.
      10.08

      0.
      $ 0.
      10.39

      0.
      $ 0.
      9.39

      0.
      $ 0.
      8.78

      $ 6075.
      8.49

      278.
      $ 15776.

                                                                                   85074.
     A. ELECT $ 34.95
                                                                                     0.
     B. DIST $ .00
     C. RESID $ .00
D. NAT G $ .00
E. COAL $ .00
F. LPG $ .00
                                                                                         0.
                                                                                         0.
                                                                                         0.
                                                                                         0.
                                                                                   51577.
     M. DEMAND SAVINGS
                                                                                   136651.
     N. TOTAL
3. NON ENERGY SAVINGS(+) / COST(-)
                                                                                      769.
    A. ANNUAL RECURRING (+/-)
         (1) DISCOUNT FACTOR (TABLE A)
                                                                  8.49
         (2) DISCOUNTED SAVING/COST (3A X 3A1)
                                                                                   6529.
    B. NON RECURRING SAVINGS(+) / COSTS(-)
                                   SAVINGS(+) YR DISCNT DISCOUNTED

COST(-) OC FACTR SAVINGS(+),

(1) (2) (3) COST(-)(4)
                                                                       SAVINGS(+)/
                   ITEM
                                    $ 0.
    d. TOTAL
    C. TOTAL NON ENERGY DISCOUNTED SAVINGS(+)/COST(-)(3A2+3Bd4)$ 6529.
 4. FIRST YEAR DOLLAR SAVINGS 2N3+3A+(3Bd1/(YRS ECONOMIC LIFE))$ 16545.
                                                                                   2.52 YEARS
 5. SIMPLE PAYBACK PERIOD (1G/4)
 6. TOTAL NET DISCOUNTED SAVINGS (2N5+3C)
                                                                          $ 143179.
 7. SAVINGS TO INVESTMENT RATIO (SIR)=(6 / 1G)=
                                                                                3.43
     (IF < 1 PROJECT DOES NOT QUALIFY)
                                                                         16.62 %
 8. ADJUSTED INTERNAL RATE OF RETURN (AIRR):
```

| I.D | | ۸. | | = 0 WATTS | 5,336 WATTS 0 WATTS 0 WATTS | = 0 WATTS | 34,961 KWHYR | 5.34 KW | \$347 /YR \$1,063 /YR | |
|--|--|---|--------------------------|---------------------------------|--|--------------------------------|-----------------------------|-----------------|--|---------------------|
| FORT BRAGG LIMITED ENERGY STUDY OF HANGAR FACILITIES AT SIMMONS ARMY AIRFIELD ECO 1: INTERIOR / EXTERIOR LIGHTING 16 DECEMBER 1994 | FIXTURE REPLACEMENT | ELECTRIC_COSTS: ENERGY CHARGE \$0.03495 PER KWH DEMAND CHARGE \$9.25 PER KW | REPLACEMENT FIXTURE DATA | 2 FOOT 0 2 LAMP U @ 58 W/FIXT = | 4 FOOT 92 2 LAMP @ 58 W/FIXT = 0 3 LAMP @ 87 W/FIXT = 0 4 LAMP @ 118 W/FIXT = | 8 FOOT 0.2 LAMP @ 125 W/FIXT = | ECO ENERGY CONSUMPTION | ЕСО DEMAND | NET DEMAND SAVINGS NET DOLLAR SAVINGS | SAVINGS |
| FORT BRAGG LIMITED ENERGY STUDY IGAR FACILITIES AT SIMMONS ARMY AI ECO 1: INTERIOR / EXTERIOR LIGHTING 16 DECEMBER 1994 | INTERIOR LIGHTING: FLUORESCENT FIXTURE REPLACEMENT | | | 0 WATTS | 8,464 WATTS 0 WATTS 0 WATTS | 0 WATTS | 55,456 KWH/YR | 8.46 KW | 20,495 KWH/YR | MAINTENANCE SAVINGS |
| FOR OF HANGAR | = | BUILDING #: 3637 - HANGAR AREA USE: | EXISTING FIXTURE DATA | 2 FOOT 2 LAMP U @ 92 W/FIXT = | 4 FOOT 92 2 LAMP @ 92 W/FIXT = 3 LAMP @ 137 W/FIXT = 4 LAMP @ 184 W/FIXT = 5 | 8 FOOT 2 LAMP @ 144 W/FIXT = | BASELINE ENERGY CONSUMPTION | BASELINE DEMAND | NET ENERGY SAVINGS | |

(4' FLUORESCENT LAMPS)

\$0 / YEAR

HR/YR =

\$0 NEAR

NET MAINTENANCE SAVINGS

\$5.00 / 20,000 HOURS *

LAMPS @_

| NG. SAR SARTS WATTS WATTS WATTS WATTS WATTS WATTS WATTS GS | T BRAGG LIMITED ENERGY R FACILITIES AT SIMMONS A ECO 1: INTERIOR / EXTERIOR LIGHTING 16 DECEMBER 1994 INTERIOR LIGHTING: LIGHTING REPLACEMENT ELECTRIC COSTS: ENERGY CHARGE DEMAND CHARGE DEMAND CHARGE DEMAND CHARGE DEMAND CHARGE O WATTS O WATTS O WATTS O WATTS O WATTS O WATTS O WH @ O WH @ O WATTS O WH @ O WH @ O WH @ O WATTS O WH @ O WH | STUDY AII SUMPTION MAND SAVING LLAR SAVING | WATTS = 0 WATTS WATTS = 0 WATTS WATTS = 0 WATTS WATTS = 21,600 WATTS WATTS = 21,600 WATTS WATTS = 21,600 WATTS S \$13,330 \text{TR} \$ \$10,200 \text{TR} \$ \$ \$10,200 \text{TR} |
|---|--|--|---|
| 48 LAMPS @ \$70.00 / 24,000 HOURS • 48 LAMPS @ \$47.00 / 20,000 HOURS • NET MAINTENANCE SAVII | NGS | 6,570 HR/YR = \$920 / YEAR (ME 6,570 HR/YR = \$741 / YEAR (ME \$179 //YEAR | (METAL HALIDE) |
| | | | |

1,179 KWH/YR 0 WATTS 0 WATTS 180 WATTS 0 WATTS 0 WATTS (INCANDESCENT) (COMPACT FLUORESCENT) X \$0 MR \$63 MR 0.18 OF HANGAR FACILITIES AT SIMMONS ARMY AIRFIELD PER KWH PER KW 13 W/FIXT = 13 W/FIXT = 18 W/FIXT = 26 W/F COMPACT FLUORESCENT REPLACEMENT **NET DEMAND SAVINGS NET DOLLAR SAVINGS** \$0.03495 FORT BRAGG LIMITED ENERGY STUDY \$307 / YEAR \$13 / YEAR ECO ENERGY CONSUMPTION INTERIOR LIGHTING: INCANDESCENT LAMP REPLACEMENT O LAMPS @ 10 LAMPS @ 1 ELECTRIC COSTS: ENERGY CHARGE DEMAND CHARGE **ECO 1: INTERIOR / EXTERIOR LIGHTING** \$294 N'EAR **ECO DEMAND** MAINTENANCE SAVINGS 6,570 HRWR = 6,570 HRWR = **16 DECEMBER 1994** 1,914 KWH/YR 3,735 KWH/YR ξ **NET MAINTENANCE SAVINGS** 0.75 \$3.50 /750 HOURS * \$2.00 / 10,000 HOURS * 0 WATTS 750 WATTS 0 WATTS 0 WATTS 1 (1-YES, 0-NO) 52 W/FIXT = 60 W/FIXT = 75 W/FIXT = 90 W/FIXT = 100 W/FIX 3637 - HANGAR BASELINE ENERGY CONSUMPTION **NET ENERGY SAVINGS** EXISTING INCANDESCENTS LAMPS @ LAMPS @ LAMPS @ LAMPS @ LAMPS @ BASELINE DEMAND AREA USE: BUILDING #: DAYSAVEEK PEAK USE HOURS/DAY 9

85,147 KWHMR \$2,398 MR \$4,382 MR ₹ (WITHOUT SKYLIGHTS) (WITH SKYLIGHTS) 21.6 OF HANGAR FACILITIES AT SIMMONS ARMY AIRFIELD PER KWH PER KW NET DEMAND SAVINGS NET DOLLAR SAVINGS \$0.03495 FORT BRAGG LIMITED ENERGY STUDY 3,942 \$741 / YEAR \$445 / YEAR ECO ENERGY CONSUMPTION REVISED USAGE: HOURS/YEAR ELECTRIC COSTS: ENERGY CHARGE DEMAND CHARGE ECO 1: INTERIOR / EXTERIOR LIGHTING 02 FEBRUARY 1995 CONVENTIONAL SKY LIGHTS IN HANGARS \$296 NEAR **ECO DEMAND** MAINTENANCE SAVINGS 6,570 HR/YR = 3,942 HR/YR = 141,912 KWH/YR 56,765 KWH/YR 21.6 KW **NET MAINTENANCE SAVINGS** \$47.00 / 20,000 HOURS • \$47.00 / 20,000 HOURS • 1 (1-YES, 0-NO) 21,600 W 6,570 BUILDING #: 3637 - HANGAR BASELINE ENERGY CONSUMPTION **NET ENERGY SAVINGS** 48 LAMPS @ 48 LAMPS @ WATTAGE CONTROLLED:_ PEAK_USE:_ CURRENT USAGE: HOURS/YEAR BASELINE DEMAND

Unit values

Totals

UOO

0.13

1.30

298

25.50

\$255

\$13,779

3.44

\$8,191

\$34

0.00

\$0

\$0

0.00

\$0

\$0

28.94

\$21,970

\$289

FEBRUARY 2, 1995 LIGHTING UPGRADE Date: Estimate: LIGHTING PRODUCT UPGRADE Description: Bid Date: FEBRUARY 2, 1995 HANGAR LIGHTING Project: Job #: 94013.04 BLDG 3637 Location: City indx: Raleigh, NC Sq. footage: Description Line # ____ Equipment Matl Labor Sub Manhours _______ DEMOLITION, INCANDESCENT FIXTURES/EXIT SIGNS 0002010000 10.00 FIXTURE 0.00 7.10 0.00 0.00 7.10 Unit values 0.26 \$71 \$0 \$0 2.60 \$0 \$71 Totals 0002020000 DEMOLITION, 1X4 FLUORESCENT FIXTURES 92.00 FIXTURE 0.00 0.00 0.00 Unit values 0.49 13.35 13.35 Totals 45.08 \$0 \$1,228 \$0 \$0 \$1,228 0002030000 DEMOLITION, HIGH BAY FIXTURES 48.00 FIXTURE 0.00 Unit values 1.00 0.00 27.50 0.00 27.50 \$0 \$0 Totals 48.00 \$0 \$1,320 \$1,320 0010400000 1X4 2-32 WATT FLUORESCENT LAMPS, PENDANT 92.00 FIXTURE MOUNTED 31.50 0.00 0.00 70.50 Unit values 39.00 1.14 \$2,898 \$0 \$0 \$3,588 \$6,486 Totals 104.88 0011000000 400 WATT METAL HALIDE FIXTURE 48.00 FIXTURE 0.00 Unit values 2.00 207.00 55.00 0.00 262.00 \$0 \$0 Totals 96.00 \$9,936 \$2,640 \$12,576 18 WATT COMPACT FLUORESCENT FIXTURE 0011200000 10.00 FIXTURE GLOBE ASSEMBLY

| ============== | ======== | ======== | ======= | | | |
|---|---------------------------------------|--------------|---------|-----------|-----|---|
| Line # | Descripti | on | | | | |
| | Manhours | Matl | Labor | Equipment | Sub | Total |
| | ====== | ======= | | | | |
| ESTIMATE TOTAL | 298 | \$13,779 | \$8,191 | \$0 | \$0 | \$21,970 |
| SALES TAX MATL MARKUP | 5.00% 0.00% 0.00% | \$689 \$0 | \$0 | | | |
| LABOR MARKUP EQUIPT MARKUP SUB MARKUP | 0.00% | | Şυ | \$0 | \$0 | |
| TOTAL BEFORE C CONTINGENCY BOND PROFIT | ONTINGENC 5.00% 5.00% 10.00% | \$14,468 | \$8,191 | \$0 | \$0 | \$22,659 \$1,133 \$1,133 \$2,266 |
| JOB TOTAL | | | | | | \$27,191 |

Estimate: LIGHTING UPGRADE Date: FEBRUARY 2, 1995
Description: LIGHTING PRODUCT UPGRADE
Project: HANGAR LIGHTING Bid Date: FEBRUARY 2, 1995

BLDG 3637

Project: Location: Sq. footage:

Job #: 94013.04 City indx: Raleigh, NC

| _ | | | | | _ |
|---|----|-----|-----|------------|---|
| C | UΜ | M. | ז ת | עדכ | 7 |
| | U | шч. | MI | \ 1 | |

| | د | OIMAKI | | | | |
|---|--|--------------|---|-----------|-----|---|
| | Manhours | Matl | Labor | Equipment | Sub | Total |
| | | ====== | = | | | |
| U00 | 298 | \$13,779 | \$8,191 | \$0 | \$0 | \$21,970 |
| TOTAL | 298 | \$13,779 | \$8,191 | \$0 | \$0 | \$21,970 |
| SALES TAX MATL MARKUP LABOR MARKUP | 5.00% 0.00% 0.00% | \$689 \$0 | \$0 | 40 | | |
| EQUIPT MARKUP SUB MARKUP | 0.00% 0.00% | | | \$0 | \$0 | |
| TOTAL BEFORE CONTINGENCY BOND PROFIT | CONTINGENC 5.00% 5.00% 10.00% | \$14,468 | \$8,191 | \$0 | \$0 | \$22,659 \$1,133 \$1,133 \$2,266 |
| JOB TOTAL | | | | | | \$27,191 |

| ========= | ======== | | | | | | |
|--|--|--------------------------|---------------|-------------------|----------|-----------------------|---|
| Estimate: Description: Project: Location: Sq. footage: | BLDG 3637 CONVENTION HANGAR STU BLDG 3637 | NAL SKYLI JDY | Bid Date | : FEBRUA 94013 | RY 2, | 1995 | ======================================= |
| Line # | Descriptio | on | | | | ====== | ======= |
| =========== | Manhours ======= | Matl ====== | Labor | Equipme | ent | Sub | Total |
| 0060000001 | CONVENTION | AL SKYLI | GHT WITH | 4" INSUI | ATED | CURBS | |
| Unit values Totals | | NED) 19.56 \$5,868 | 2.41 \$723 | 0. | 09 27 | 300.00 0.00 \$0 | |
| U00 | 0 | \$5,868 | \$723 | \$ | 27 | \$0 | \$6,618 |

| ======================================= | | ======= | ======= | ======================================= | ======= | ======= |
|---|---------------|-----------------|----------------|---|-------------------------|---|
| Line # | Descripti | on | | | | |
| | Manhours | Matl | Labor | Equipment | Sub | Total |
| | | | | ======================================= | ======: | ======================================= |
| 1611350023 | LOW VOLTA | GE WIRE #: | 18-4C | | | |
| Unit values Totals | 1.23 6.15 | 15.40 \$77 | 34.00 \$170 | 0.00 | 5.00 0.00 \$0 | CLF 49.40 \$247 |
| 1611750101 | LIGHTING | CONTACTOR | | | | 7 |
| Unit values Totals | 2.00 | 137.00 \$274 | 55.00 \$110 | 0.00 | 2.00 0.00 \$0 | EA. 192.00 \$384 |
| 1611850101 | PHOTO SWIT | TCH 50-500 | FC ADJUS | TABLE | | , |
| Unit values Totals | 1.00 | 290.00 \$580 | 27.50 \$55 | 0.00 \$0 | 2.00 0.00 \$0 | EA. 317.50 \$635 |
| 1611870101 | LOW VOLTA | SE TRANS 1 | 15V-24V | | · | 7 |
| Unit values Totals | 0.67 0.67 | 64.00 \$64 | 18.35 \$18 | 0.00 | 1.00 0.00 \$0 | EA. 82.35 \$82 |
| 1611870102 | SWITCHING | RELAYS | | | | |
| Unit values Totals | 0.50 2.00 | 11.30 \$45 | 13.75 \$55 | 0.00 \$0 | 4.00 1 0.00 \$0 | EA. 25.05 \$100 |
| 1611950101 | 1/2" EMT | | | | · | • |
| Unit values Totals | 0.05 17.00 | 0.38 \$129 | 1.29 \$439 | 0.00 \$0 | 340.00 1 0.00 \$0 | LF 1.67 \$568 |
| U16 ELECTRICAL | 32 | \$1,169 | \$847 | \$0 | \$0 | \$2,016 |

| | | | | | | ======= |
|--|---------------------------------------|--------------|---------|-----------|--------------|------------------------------------|
| Line # | Description | on | | | | |
| ======================================= | Manhours | Matl | Labor | Equipment | Sub | Total |
| | | | | | | |
| ESTIMATE TOTAL | 32 | \$7,037 | \$1,570 | \$27 | \$0 | \$8,634 |
| SALES TAX MATL MARKUP | 5.00% 0.00% | \$352 \$0 | | | | |
| LABOR MARKUP EQUIPT MARKUP SUB MARKUP | 0.00% 0.00% 0.00% | | \$0 | \$0 | ^ ^ ^ | |
| | 0.008 | | | | \$0 | |
| TOTAL BEFORE CO CONTINGENCY BOND PROFIT | ONTINGENC 5.00% 5.00% 10.00% | \$7,389 | \$1,570 | \$27 | \$0 | \$8,986 \$449 \$449 \$899 |
| JOB TOTAL | | | | | | \$10,783 |

Estimate: BLDG 3637 Date: FEBRUARY 2, 1995
Description: CONVENTIONAL SKYLIGHT & CONTROLS
Project: HANGAR STUDY Bid Date: FEBRUARY 2, 1995

Project: Location:

BLDG 3637

Job #: 94013.04

Sq. footage: City indx:Raleigh, NC

| SI | TM | MΑ | R | v |
|----|------|--------|---|---|
| 2 | 71.T | נידניו | | 1 |

| | Manhours | Matl | Labor | Equipment | Sub | Total |
|--|---------------------------------------|--------------------|----------------|-------------|------------|------------------------------------|
| | | | | | | |
| U00 U16 ELECTRICAL | 0 32 | \$5,868 \$1,169 | \$723 \$847 | \$27 \$0 | \$0 \$0 | \$6,618 \$2,016 |
| TOTAL | 32 | \$7,037 | \$1,570 | \$27 | \$0 | \$8,634 |
| SALES TAX MATL MARKUP LABOR MARKUP | 5.00% 0.00% 0.00% | \$352 \$0 | \$0 | | | |
| EQUIPT MARKUP SUB MARKUP | 0.00% 0.00% | | | \$0 | \$0 | |
| TOTAL BEFORE CO CONTINGENCY BOND PROFIT | ONTINGENC 5.00% 5.00% 10.00% | \$7,389 | \$1,570 | \$27 | \$0 | \$8,986 \$449 \$449 \$899 |
| JOB TOTAL | | | | | | \$10,783 |

ENERGY CONSERVATION INVESTMENT PROGRAM (ECIP) LCCID FY95 (92) INSTALLATION & LOCATION: FORT BRAGG REGION NOS. 4 CENSUS: 3 PROJECT NO. & TITLE: 3642 SKY LIGHTS & LIGHTING PRODUCTS @ HANGARS DISCRETE PORTION NAME: LIGHTING FISCAL YEAR 95 ANALYSIS DATE: 02-03-95 ECONOMIC LIFE 10 YEARS PREPARED BY: JAH 1. INVESTMENT 60635. A. CONSTRUCTION COST 3032. B. SIOH 3032. C. DESIGN COST D. TOTAL COST (1A+1B+1C) \$ 66699. E. SALVAGE VALUE OF EXISTING EQUIPMENT \$ F. PUBLIC UTILITY COMPANY REBATE 0. 66699. G. TOTAL INVESTMENT (1D - 1E - 1F) 2. ENERGY SAVINGS (+) / COST (-) DATE OF NISTIR 85-3273-X USED FOR DISCOUNT FACTORS OCT 1993 UNIT COST SAVINGS ANNUAL \$ DISCOUNT DISCOUNTED MWH/YR(2) SAVINGS(3) FACTOR(4) SAVINGS(5) FUEL \$/ MWH(1) A. ELECT \$ 34.95 245. 8558. 8.77 75057. B. DIST \$.00 0. 0. 9.26 0. 0. C. RESID \$.00 0. 10.08 0. \$ \$ \$.00 0. 0. 10.39 D. NAT G \$ 0. E. COAL \$.00 0. 0. 9.39 0. F. LPG 8.78 0. .00 Ο. 0. 10077. \$ 8.49 M. DEMAND SAVINGS 85554. 245. 18635. N. TOTAL 160611. 3. NON ENERGY SAVINGS(+) / COST(-) A. ANNUAL RECURRING (+/-) \$ 5404. (1) DISCOUNT FACTOR (TABLE A) 8.49 \$ (2) DISCOUNTED SAVING/COST (3A X 3A1) 45880. B. NON RECURRING SAVINGS(+) / COSTS(-) SAVINGS(+) YR DISCNT DISCOUNTED OC FACTR SAVINGS(+)/ COST(-) ITEM (1) (2) (3) COST(-)(4)d. TOTAL 0. 0. C. TOTAL NON ENERGY DISCOUNTED SAVINGS(+)/COST(-)(3A2+3Bd4)\$ 45880. 4. FIRST YEAR DOLLAR SAVINGS 2N3+3A+(3Bd1/(YRS ECONOMIC LIFE))\$ 24039. **2.77 YEARS** 5. SIMPLE PAYBACK PERIOD (1G/4) 6. TOTAL NET DISCOUNTED SAVINGS (2N5+3C) \$ 206491. 7. SAVINGS TO INVESTMENT RATIO (SIR)=(6 / 1G)=3.10 (IF < 1 PROJECT DOES NOT QUALIFY) 8. ADJUSTED INTERNAL RATE OF RETURN (AIRR): 15.43 %

LIFE CYCLE COST ANALYSIS SUMMARY

STUDY: 3642

11,672 KWHYYR 116 WATTS 0 WATTS 0 WATTS 0 WATTS 3,625 WATTS \$69 /YR \$136 /YR 3.74 KW (4' FLUORESCENT LAMPS) OF HANGAR FACILITIES AT SIMMONS ARMY AIRFIELD PER KWH PER KW 58 W/FIXT = 87 W/FIXT = 118 W/FIXT = 58 W/FIXT = 125 W/FIXT = NET DEMAND SAVINGS NET DOLLAR SAVINGS FORT BRAGG LIMITED ENERGY STUDY \$0.03495 REPLACEMENT FIXTURE DATA \$0 / YEAR ECO ENERGY CONSUMPTION INTERIOR LIGHTING: FLUORESCENT FIXTURE REPLACEMENT 0 2 LAMP U@ 2 2 LAMP @ 0 3 LAMP @ 0 4 LAMP @ ELECTRIC COSTS: ENERGY CHARGE DEMAND CHARGE 29 2 LAMP @ ECO 1: INTERIOR / EXTERIOR LIGHTING 16 DECEMBER 1994 **ECO DEMAND** MAINTENANCE SAVINGS HRMR = 4 F00T **8** FOOT 2 F001 13,603 KWH/YR 1,931 KWH/YR 4.36 KW / 20,000 HOURS • 184 WATTS 0 WATTS 0 WATTS 0 WATTS 4,176 WATTS 92 W/FIXT = 137 W/FIXT = 184 W/FIXT = 92 W/FIXT = 144 W/FIXT = BUILDING #: 3642 - HANGAR BASELINE ENERGY CONSUMPTION **NET ENERGY SAVINGS** 5 2 LAMPS @ EXISTING FIXTURE DATA 2 LAMP U@ BASELINE DEMAND AREA USE:_ HOURS/DAY DAYSWEEK 2 LAMP @ 3 LAMP @ 4 LAMP @ 29 2 LAMP @ **4 FOOT 8 FOOT**

SO MEAR

NET MAINTENANCE SAVINGS

102,636 KWH/YR 18,450 WATTS 12,300 WATTS 0 WATTS 2,146 WATTS (EXISTING INCANDESCENT) (EXISTING MERCURY VAPOR) EXISTING INCANDESCENT) (METAL HALIDE) (HIGH PRESSURE SODIUM) ₹ \$6,297 MR \$12,483 MR 32.90 (FLUORESCENT) OF HANGAR FACILITIES AT SIMMONS ARMY AIRFIELD 37 2 LAMP @ 58 W/FIXT = [FOUR FOOT FLUORESCENT FIXTURES] PER KWH PER KW 450 WATTS = 300 WATTS = WATTS = **NET DEMAND SAVINGS** NET DOLLAR SAVINGS FORT BRAGG LIMITED ENERGY STUDY \$0.03495 \$1,212 / YEAR \$3,326 / YEAR \$373 / YEAR \$58 / YEAR \$301 / YEAR \$203 / YEAR REPLACEMENT FIXTURE DATA ECO ENERGY CONSUMPTION ELECTRIC_COSTS; ENERGY CHARGE DEMAND CHARGE INTERIOR LIGHTING: LIGHTING REPLACEMENT **ECO 1: INTERIOR / EXTERIOR LIGHTING** MH @ HPS @ HPS @ \$4,349 MEAR **ECO DEMAND** MAINTENANCE SAVINGS 4 4 HRYR = HRMR = HRYR = HR/YR = HRYR = HRMR = 16 DECEMBER 1994 888888 279,630 KWH/YR 176,994 KWH/YR ΧŽ **NET MAINTENANCE SAVINGS** 89.63 \$5.25 / 1,000 HOURS • \$26.00 / 1,000 HOURS • \$70.00 / 24,000 HOURS • \$5.00 / 20,000 HOURS • \$47.00 / 20,000 HOURS • \$38.00 / 24,000 HOURS • 30,750 WATTS 44,075 WATTS 200 WATTS = 14,800 WATTS 0 WATTS 1 (1-YES, 0-NO) 750 WATTS = 1075 WATTS = WATTS = BUILDING #: 3642 - HANGAR BASELINE ENERGY CONSUMPTION **NET ENERGY SAVINGS** 74 LAMPS @ 41 LAMPS @ 74 LAMPS @ 41 LAMPS @ 41 LAMPS @ 5 5 EXISTING FIXTURE DATA AREA USE: HOURS/DAY BASELINE DEMAND 74 INCAND @ INCAND @ DAYSWEEK PEAK USE 4 4

2,424 KWHYR 0 WATTS 507 WATTS 270 WATTS 0 WATTS 0 WATTS (COMPACT FLUORESCENT) 0.78 KW \$298 MR \$591 MR (INCANDESCENT) OF HANGAR FACILITIES AT SIMMONS ARMY AIRFIELD PER KWH PER KW 13 W/FIXT = 13 W/FIXT = 18 W/FIXT = 26 W/F <u>26 W/FIXT = </u> COMPACT FLUORESCENT REPLACEMENT NET DEMAND SAVINGS NET DOLLAR SAVINGS FORT BRAGG LIMITED ENERGY STUDY \$0.03495 \$786 / YEAR \$34 / YEAR ECO ENERGY CONSUMPTION INTERIOR LIGHTING: INCANDESCENT LAMP REPLACEMENT 0 LAMPS @ 139 LAMPS @ 15 LAMPS @ 0 LAMPS @ 0 LAMPS @ LAMPS @ 15 LA ELECTRIC_COSTS; ENERGY CHARGE DEMAND CHARGE **ECO 1: INTERIOR / EXTERIOR LIGHTING \$752 IYEAR ECO DEMAND** MAINTENANCE SAVINGS 3,120 HRWR = 3,120 HRWR = 16 DECEMBER 1994 10,811 KWH/YR 8,387 KWH/YR 3.47 KW **NET MAINTENANCE SAVINGS** \$3.50 /750 HOURS* \$2.00 /10,000 HOURS* 0 WATTS 2,340 WATTS 1,125 WATTS 0 WATTS 0 WATTS 1 (1-YES, 0-NO) 52 W/FIXT = 60 W/FIXT = 75 W/FIXT = 90 W/FIXT = 100 W/FIX BUILDING #: 3642 - HANGAR BASELINE ENERGY CONSUMPTION **NET ENERGY SAVINGS** 54 LAMPS @ 54 LAMPS @ 5 5 EXISTING INCANDESCENTS AREA USE:_ HOURS/DAY BASELINE DEMAND LAMPS@ LAMPS@ LAMPS@ LAMPS@ DAYSWEEK PEAK USE 39

KWHMR ₹ \$5,425 MR \$3,413 MR (WITHOUT SKYLIGHTS) (WITHOUT SKYLIGHTS) (WITH SKYLIGHTS) (WITH SKYLIGHTS) 38,376 30.75 OF HANGAR FACILITIES AT SIMMONS ARMY AIRFIELD PER KWH PER KW **NET DEMAND SAVINGS NET DOLLAR SAVINGS** FORT BRAGG LIMITED ENERGY STUDY \$0.03495 1,248 \$203 / YEAR \$301 / YEAR \$81 / YEAR \$120 / YEAR ECO ENERGY CONSUMPTION REVISED USAGE: HOURS/YEAR ELECTRIC COSTS: ENERGY CHARGE DEMAND CHARGE **ECO 1: INTERIOR / EXTERIOR LIGHTING** CONVENTIONAL SKY LIGHTS IN HANGARS \$303 NEAR MAINTENANCE SAVINGS **ECO DEMAND** 3,120 HR/YR = 3,120 HR/YR = 1,248 HR/YR = 1, 02 FEBRUARY 1995 95,940 KWHMR 57,564 KWH/YR ₹ **NET MAINTENANCE SAVINGS** \$38.00 / 24,000 HOURS • \$47.00 / 20,000 HOURS • \$38.00 / 24,000 HOURS • \$47.00 / 20,000 HOURS • 30.75 30,750 W 1 (1-YES, 0-NO) 3,120 BUILDING #: 3642 - HANGAR BASELINE ENERGY CONSUMPTION **NET ENERGY SAVINGS** 41 LAMPS @ 41 LAMPS @ 41 LAMPS @ 41 LAMPS @ CURRENT USAGE: HOURS/YEAR BASELINE DEMAND

| Estimate: Description: Project: Location: Sq. footage: | LIGHTING UPGRA LIGHTING PRODU HANGAR LIGHTIN BLDG 3642 | UCT UPGRADE UG Bid Date: Job #: | :Raleigh, NC | .995 | |
|--|--|---------------------------------|----------------|---------------|--------------------|
| Line # | Description | | | | |
| | Manhours Mat | l Labor | Equipment | Sub | |
| ======================================= | | | | | |
| 0002010000 | DEMOLITION, IN | | | GNS 128.00 | FIXTURE |
| Unit values Totals | 0.26 0 33.28 | 7.10 \$0 \$909 | 0.00 \$0 | 0.00 | 7.10 \$909 |
| 0002020000 | DEMOLITION, 1X | 4 FLUORESCENT | FIXTURES | 31.00 | FIXTURE |
| Unit values Totals | | 0.00 13.35 \$0 \$414 | | 0.00 | 13.35 \$414 |
| 0002030000 | DEMOLITION, HI | GH BAY FIXTUR | ES | 82 00 | FIXTURE |
| Unit values Totals | | 0.00 27.50 \$0 \$2,255 | 0.00 | 0.00 | 27.50 \$2,255 |
| 0010000000 | 1X4 2-32 WATT | FLUORESCENT | LAMPS, SURFACE | 37.00 | FIXTURE |
| Unit values Totals | 1.14 60 | 31.50 220 \$1,166 | 0.00 \$0 | 0.00 | 91.50 \$3,386 |
| 0010400000 | 1X4 2-32 WATT | FLUORESCENT | LAMPS, PENDANT | 2.00 | FIXTURE |
| Unit values Totals | 1.14 39 | 9.00 31.50 \$78 \$63 | 0.00 \$0 | 0.00 | 70.50 |
| 0010600000 | 1X8 2-59 WATT | FLUORESCENT | LAMPS, PENDANT | 29.00 | FIXTURE |
| Unit values Totals | 1.75 131 | 48.12 799 \$1,395 | 0.00 \$0 | 0.00 | 179.12 \$5,194 |
| 0011000000 | 400 WATT META | AL HALIDE FIXT | URE | 41.00 | FIXTURE |
| Unit values Totals | 2.00 207 82.00 \$8, | 7.00 55.00 487 \$2,255 | 0.00 \$0 | 0.00 | 262.00 \$10,742 |
| 0011100000 | 13 WATT COMPA | | r fixture | 39 00 | FIXTURE |
| Unit values Totals | 0 13 25 | 3.44 3.995 \$134 | 0.00 \$0 | 0.00 | 28.94 \$1,129 |
| 0011200000 | 18 WATT COMPA GLOBE ASSEMBLY | | T FIXTURE | 15.00 | FIXTURE |

| 02-Feb-95 | | Page : | | | | | |
|-----------------------|--------------|-------------------|------------------|-------------|-------------|--------------------|--|
| Unit values Totals | 0.13 1.95 | 25.50 \$383 | 3.44 \$52 | 0.00 \$0 | 0.00 | 28.94 \$435 | |
| 0011300000 | 250 WATT H | | SURE SODIUM | FIXTURE | 41.00 | FIXTURE | |
| Unit values Totals | 2.00 | 214.00 \$8,774 | 55.00 \$2,255 | 0.00 \$0 | 0.00 \$0 | 269.00 \$11,029 | |

| | | | | ======== | ======== | |
|---|---|----------------|----------|-----------|----------|---|
| Line # | Descripti | on. | | | | |
| | Manhours | Matl | Labor | Equipment | Sub | Total |
| 000 | 397 | \$24,736 | \$10,898 | \$0 | \$0 | \$35,634 |
| ESTIMATE TOTAL | 397 | \$24,736 | \$10,898 | \$0 | \$0 | \$35,634 |
| SALES TAX MATL MARKUP LABOR MARKUP EQUIPT MARKUP SUB MARKUP | 5.00% 0.00% 0.00% 0.00% 0.00% | \$1,237 \$0 | \$0 | \$0 | \$0 | |
| TOTAL BEFORE COCONTINGENCY BOND PROFIT | ONTINGENC 5.00% 5.00% 10.00% | \$25,973 | \$10,898 | \$0 | \$0 | \$36,871 \$1,844 \$1,844 \$3,687 |
| JOB TOTAL | | | | | | \$44,245 |

Estimate: LIGHTING UPGRADE Date: Description: LIGHTING PRODUCT UPGRADE

FEBRUARY 2, 1995

Project: HANGAR LIGHTING Location: BLDG 3642

Bid Date: FEBRUARY 2, 1995

Job #: 94013.04 City indx:Raleigh, NC

| Sq. footage: | | | | - | ======== | -======= |
|---|----------------|----------------|----------|-----------|----------|---------------------|
| ======================================= | S | UMMARY | | | | |
| | Manhours | Matl | Labor | Equipment | Sub | Total |
| | ========= | | | | | |
| U00 | 397 | \$24,736 | \$10,898 | \$0 | \$0 | \$35,634 |
| TOTAL | 397 | \$24,736 | \$10,898 | \$0 | \$0 | \$35,634 |
| SALES TAX | 5.00% 0.00% | \$1,237 \$0 | | | | |
| MATL MARKUP LABOR MARKUP | 0.00% | ŞU | \$0 | ¢0 | | |
| EQUIPT MARKUP SUB MARKUP | 0.00% 0.00% | | | \$0 | \$0 | |
| | CONTINGENC | \$25,973 | \$10,898 | \$0 | \$0 | \$36,871 \$1,844 |
| CONTINGENCY BOND | 5.00% 5.00% | | | | | \$1,844 |
| PROFIT | 10.00% | | | | | \$3,687 |
| JOB TOTAL | | | | | | \$44,245 |

Estimate: BLDG 3642 Date: FEBRUARY 2, 1995
Description: CONVENTIONAL SKYLIGHT & CONTROLS
Project: HANGAR STUDY Bid Date: FEBRUARY 2, 1995
Location: BLDG 3642 Job #: 94013.04
Sq. footage: City indx:Raleigh, NC

| Line | # | D | esc | rip | tic | מכ |
|------|---|---|-----|-----|-----|----|
| | | | | | | |

| | Manhours | Matl | Labor | Equipment | Sub | Total |
|-------------|-----------------------|---------|------------|-------------|----------------|---------|
| | | | | | | |
| 0060000001 | CONVENTION (DOUBLE PA | | GHT WITH 4 | " INSULATED | CURBS | |
| Unit values | 0.00 | 19.56 | 2.41 | 0.09 | 450.00 0.00 | 22.06 |
| Totals | 0.00 | \$8,802 | \$1,085 | \$41 | \$0 | \$9,928 |
| UOO | 0 | \$8,802 | \$1,085 | \$41 | \$0 | \$9,928 |

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ENERGY CONSERVATION INVESTMENT PROGRAM (ECIP)
                                                         LCCID FY95 (92)
INSTALLATION & LOCATION: FORT BRAGG REGION NOS. 4 CENSUS: 3
PROJECT NO. & TITLE: 3807 SKY LIGHTS & LIGHTING PRODUCTS @ HANGARS
FISCAL YEAR 95 DISCRETE PORTION NAME: LIGHTING
ANALYSIS DATE: 02-03-95 ECONOMIC LIFE 10 YEARS PREPARED BY: JAH
1. INVESTMENT
A. CONSTRUCTION COST $
B. SIOH $
C. DESIGN COST $
                               53422.
                               2671.
                                2671.
D. TOTAL COST (1A+1B+1C) $ 58764.
C. DESIGN COST
E. SALVAGE VALUE OF EXISTING EQUIPMENT $
F. PUBLIC UTILITY COMPANY REBATE $
                                                 0.
G. TOTAL INVESTMENT (1D - 1E - 1F)
                                                           58764.
2. ENERGY SAVINGS (+) / COST (-)
DATE OF NISTIR 85-3273-X USED FOR DISCOUNT FACTORS OCT 1993
             UNIT COST SAVINGS ANNUAL $ DISCOUNTED $/ MWH(1) MWH/YR(2) SAVINGS(3) FACTOR(4) SAVINGS(5)
    FUEL
                                            4238.
0.
0.
                           121.
    A. ELECT $ 34.95
                           121. $ 4238.

0. $ 0.

0. $ 0.

0. $ 0.

0. $ 0.

0. $ 0.

121. $ 8076.
                                                        8.77
                                                                      37167.
    B. DIST $ .00
                                                        9.26
                                                                      0.
                                                      10.08
    C. RESID $
                 .00
                                                                          0.
                 .00
                                                       10.39
    D. NAT G $
                                                                         0.
                .00
    E. COAL $
                                                       9.39
                                                                 $
                                                                          0.
                                                        8.78
    F. LPG $
                 .00
                                                                          0.
                                                                 $ 32585.
                                                        8.49
    M. DEMAND SAVINGS
    N. TOTAL
                                                                     69751.
3. NON ENERGY SAVINGS(+) / COST(-)
   A. ANNUAL RECURRING (+/-)
                                                                       747.
       NNUAL RECURRING (+/-)
(1) DISCOUNT FACTOR (TABLE A)
                                                        8.49
       (2) DISCOUNTED SAVING/COST (3A X 3A1)
                                                                       6342.
   B. NON RECURRING SAVINGS(+) / COSTS(-)
                             SAVINGS(+) YR DISCNT DISCOUNTED

COST(-) OC FACTR SAVINGS(+),

(1) (2) (3) COST(-)(4)
               ITEM
                                                          SAVINGS(+)/
                             $ 0.
                                                                0.
   d. TOTAL
   C. TOTAL NON ENERGY DISCOUNTED SAVINGS(+)/COST(-)(3A2+3Bd4)$ 6342.
4. FIRST YEAR DOLLAR SAVINGS 2N3+3A+(3Bd1/(YRS ECONOMIC LIFE))$ 8823.
                                                                    6.66 YEARS
5. SIMPLE PAYBACK PERIOD (1G/4)
6. TOTAL NET DISCOUNTED SAVINGS (2N5+3C)
                                                               $ 76093.
7. SAVINGS TO INVESTMENT RATIO (SIR)=(6 / 1G)=
                                                                  1.29
    (IF < 1 PROJECT DOES NOT QUALIFY)
                                                                   5.80 %
8. ADJUSTED INTERNAL RATE OF RETURN (AIRR):
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LIFE CYCLE COST ANALYSIS SUMMARY

STUDY: 3807

70,303 KWH/YR 0 WATTS 10,730 WATTS 0 WATTS 0 WATTS 0 WATTS 0 WATTS \$808 MR \$2,475 MR (4' FLUORESCENT LAMPS) 10.73 KW OF HANGAR FACILITIES AT SIMMONS ARMY AIRFIELD PER KWH PER KW 58 W/FIXT = 29 W/FIXT = 58 W/FIXT = 87 W/FIXT = 118 W/FIXT = 125 W/FIXT **NET DEMAND SAVINGS** NET DOLLAR SAVINGS \$0.03495 FORT BRAGG LIMITED ENERGY STUDY REPLACEMENT FIXTURE DATA \$36 / YEAR ECO ENERGY CONSUMPTION INTERIOR LIGHTING: FLUORESCENT FIXTURE REPLACEMENT 0 2 LAMP U@ 0 2 LAMP @ 185 2 LAMP @ 3 LAMP @ 0 4 LAMP @ 0 2 LAMP @ ELECTRIC COSTS. ENERGY CHARGE DEMAND CHARGE ECO 1: INTERIOR / EXTERIOR LIGHTING 16 DECEMBER 1994 \$38 MEAR ECO DEMAND MAINTENANCE SAVINGS 6,570 HR/YR = 8 FOOT 2 FOOT **4 FOOT** 118,002 KWH/YR 47,699 KWH/YR 18.01 KW **NET MAINTENANCE SAVINGS** \$5.00 / 20,000 HOURS * 0 WATTS 14,996 WATTS 3,014 WATTS 0 WATTS 0 WATTS 0 WATTS 45 W/FIXT = 92 W/FIXT = 137 W/FIXT = 184 W/FIXT = 92 W/FIXT = 144 W/FIXT = BUILDING #: 3807 - HANGAR BASELINE ENERGY CONSUMPTION **NET ENERGY SAVINGS** 22 LAMPS @ 18 EXISTING FIXTURE DATA 2 LAMP U@ AREA USE:_ HOURS/DAY 1 LAMP @ 163 2 LAMP @ 22 3 LAMP @ 4 LAMP @ BASELINE DEMAND 2 LAMP @ DAYSWEEK 2 F00T 4 F00T 8 FOOT

289 KWH/YR (INCANDESCENT) (COMPACT FLUORESCENT) 0.03 KW \$33 MR \$124 MR 7 REPLACEMENT SIGNS OF HANGAR FACILITIES AT SIMMONS ARMY AIRFIELD PER KWH PER KW # OF EXIT SIGNS: WATTAGE: NET DEMAND SAVINGS NET DOLLAR SAVINGS \$0.03495 FORT BRAGG LIMITED ENERGY STUDY \$337 / YEAR \$0 / YEAR ECO ENERGY CONSUMPTION ELECTRIC COSTS ENERGY CHARGE DEMAND CHARGE INTERIOR LIGHTING: EXIT SIGN REPLACEMENT **ECO 1: INTERIOR / EXTERIOR LIGHTING** \$337 NEAR ECO DEMAND MAINTENANCE SAVINGS 0 18 8,760 HR/YR = HR/YR = 16 DECEMBER 1994 FLUORESCENT EXIT SIGNS WATTAGE: # OF EXIT SIGNS: 2,891 KWH/YR 2,602 KWH/YR Ş **NET MAINTENANCE SAVINGS** 0.33 \$3.50 /1,000 HOURS • / 10,000 HOURS • ഉ = BUILDING #: 3807 - HANGAR INCANDESCENT EXIT SIGNS BASELINE ENERGY CONSUMPTION **NET ENERGY SAVINGS** 11 LAMPS @____LAMPS @__ WATTAGE: # OF EXIT SIGNS: BASELINE DEMAND

| UDY 1Y AIRFIELD | | 0.03495 PER KWH | \$9.25 PER KW | 3,942 | ON 106,434 KWH/YR | 27 KW | SAVINGS \$2,997 MR SAVINGS \$5,477 MR | | EAR (WITHOUT SKYLIGHTS) EAR (WITH SKYLIGHTS) | |
|--|------------------------------------|----------------------------------|---|-------------------------------------|-----------------------------|-----------------|---|---------------------|---|-------------------------|
| FORT BRAGG LIMITED ENERGY STUDY GAR FACILITIES AT SIMMONS ARMY AI ECO 1: INTERIOR / EXTERIOR LIGHTING OF FEBRUARY 1995 | CONVENTIONAL SKY LIGHTS IN HANGARS | ELECTRIC COSTS: ENERGY CHARGE | 1 1 | <u>REVISED USAGE:</u> HOURS/YEAR | YR ECO ENERGY CONSUMPTION | ECO DEMAND | YR NET DEMAND SAVINGS NET DOLLAR SAVINGS | MAINTENANCE SAVINGS | 6,570 HR/YR = \$936 / YEAR 3,942 HR/YR = \$562 / YEAR | \$374 MEAR |
| FORT BRAGG LIMITED ENERGY STUDY OF HANGAR FACILITIES AT SIMMONS ARMY AIRFIELD ECO 1: INTERIOR / EXTERIOR LIGHTING 02 FEBRUARY 1895 | CONVENTIONA | 3807 - HANGAR | TROLLED: 27,000 W EAK USE: 1 (1-YES, 0-NO) | USAGE: RS/YEAR 6,570 | CONSUMPTION 177,390 KWH/YR | 27 KW | NET ENERGY SAVINGS 70,956 KWH/YR | MAINTE | 90 LAMPS @ \$38.00 / 24,000 HOURS • 90 LAMPS @ \$38.00 / 24,000 HOURS • | NET MAINTENANCE SAVINGS |
| | | BUILDING #: | WATTAGE CONTROLLED: PEAK USE: | CURRENT USAGE: HOURS/YEAR | BASELINE ENERGY CONSUMPTION | BASELINE DEMAND | NET ENE | | 8 8 | |

FEBRUARY 2, 1995 LIGHTING UPGRADE Date: Estimate: LIGHTING PRODUCT UPGRADE Description: Bid Date: FEBRUARY 2, 1995 HANGAR LIGHTING Project: Job #: 94013.04 BLDG 3807 Location: City indx:Raleigh, NC Sq. footage: Description Line # Equipment Matl Labor Sub Manhours ______ DEMOLITION, 2X4 FLUORESCENT FIXTURES 0002000000 148.00 FIXTURE 0.00 0.00 0.00 13.35 Unit values 0.49 13.35 \$0 \$0 \$1,976 \$0 \$1,976 Totals 72.52 DEMOLITION, INCANDESCENT FIXTURES/EXIT SIGNS 0002010000 11.00 FIXTURE 0.00 7.10 0.00 0.00 7.10 Unit values 0.26 \$0 \$0 \$0 \$78 \$78 Totals 2.86 DEMOLITION, 1X4 FLUORESCENT FIXTURES 0002020000 37.00 FIXTURE 0.00 0.00 13.35 0.00 13.35 Unit values 0.49 \$494 \$0 18.13 \$0 \$0 \$494 Totals 2X4 2-32 WATT FLUORESCENT LAMPS, RECESSED 0010100000 126.00 FIXTURE MOUNTED 59.00 41.50 0.00 0.00 100.50 1.51 Unit values 190.26 \$7,434 \$5,229 \$0 \$0 \$12,663 Totals 1X4 2-32 WATT FLUORESCENT LAMPS, WALL MOUNTED 0010300000 26.00 FIXTURE 0.00 0.00 60.00 31.50 91.50 Unit values 1.14 \$819 \$0 \$0 29.64 \$1,560 \$2,379 Totals 1X4 2-32 WATT FLUORESCENT LAMPS, PENDANT 0010400000 11.00 FIXTURE MOUNTED 0.00 Unit values 1.14 39.00 31.50 0.00 70.50 \$347 \$0 \$0 Totals 12.54 \$429 \$776 2X4 2-32 WATT FLUORESCENT LAMPS, RECESSED 0010500000 MOUNTED WITH REFLECTORS 22.00 FIXTURE 0.00 41.50 0.00 116.50 Unit values 1.51 75.00 \$0 \$0 \$1,650 \$913 \$2,563 Totals 33.22 LED EXIT SIGN, RETROFIT KIT 0010700000 11.00 FIXTURE 35.00 27.50 0.00 0.00 62.50 Unit values 1.00 \$0 11.00 \$385 \$303 \$0 \$688 Totals

| Line # | Description | | | | | | | |
|---|---|--------------|----------|-----------|-----|---|--|--|
| | Manhours | Matl | Labor | Equipment | Sub | Total | | |
| noo | 371 | \$11,458 | \$10,159 | \$0 | \$0 | \$21,617 | | |
| ESTIMATE TOTAL | 371 | \$11,458 | \$10,159 | \$0 | \$0 | \$21,617 | | |
| SALES TAX MATL MARKUP LABOR MARKUP EQUIPT MARKUP SUB MARKUP | 5.00% 0.00% 0.00% 0.00% 0.00% | \$573 \$0 | \$0 | \$0 | \$0 | | | |
| TOTAL BEFORE C CONTINGENCY BOND PROFIT | ONTINGENC 5.00% 5.00% 10.00% | \$12,031 | \$10,159 | \$0 | \$0 | \$22,190 \$1,109 \$1,109 \$2,219 | | |
| JOB TOTAL | | | | | | \$26,628 | | |

Estimate:

LIGHTING UPGRADE Date: LIGHTING PRODUCT UPGRADE

FEBRUARY 2, 1995

Description: Project:

HANGAR LIGHTING BLDG 3807

Bid Date: FEBRUARY 2, 1995

Location: Sq. footage:

94013.04 Job #: City indx: Raleigh, NC

| Sq. footage: | | | | | | |
|---|--|--------------|----------|-----------|-----|---|
| ======================================= | ======== S | UMMARY | | | | |
| | Manhours | Matl | Labor | Equipment | Sub | Total |
| | | | ====== | | | |
| 000 | 371 | \$11,458 | \$10,159 | \$0 | \$0 | \$21,617 |
| TOTAL | 371 | \$11,458 | \$10,159 | \$0 | \$0 | \$21,617 |
| SALES TAX | 5.00% 0.00% | \$573 \$0 | | | | |
| MATL MARKUP LABOR MARKUP | 0.00% | ŞÜ | \$0 | | | |
| EQUIPT MARKUP SUB MARKUP | 0.00% 0.00% | | | \$0 | \$0 | |
| TOTAL BEFORE (CONTINGENCY BOND PROFIT | CONTINGENC 5.00% 5.00% 10.00% | \$12,031 | \$10,159 | \$0 | \$0 | \$22,190 \$1,109 \$1,109 \$2,219 |
| JOB TOTAL | | | | | | \$26,628 |

Estimate: BLDG 3807 Date: FEBRUARY 2, 1995
Description: CONVENTIONAL SKYLIGHT & CONTROLS
Project: HANGAR STUDY Bid Date: FEBRUARY 2, 1995

Project: Location:

BLDG 3807 94013.04 Job #: Sq. footage: City indx: Raleigh, NC

Description

Labor Equipment Sub Total Manhours Matl 0060000001 CONVENTIONAL SKYLIGHT WITH 4" INSULATED CURBS (DOUBLE PANED) 780.00 SQ. FT Unit values 0.00 19.56 2.41 0.09 0.00 22.06 Totals \$15,257 0.00 \$1,880 \$70 \$0 \$17,207

UOO 0 \$15,257 \$1,880 \$70 \$0 \$17,207

| Line # | Descripti | on. | | | | |
|-----------------------|---------------|-------------------|----------------|-------------|-----------------------|--------------------------|
| . Dine # | Descripti | | | | | |
| | Manhours | Matl | Labor | Equipment | Sub | Total |
| | | | : | ======== | ======= | |
| 1611350023 | LOW VOLTA | GE WIRE #1 | 18-4C | | | |
| Unit values Totals | 1.23 17.22 | 15.40 \$216 | 34.00 \$476 | 0.00 | 14.00 0.00 \$0 | CLF 49.40 \$692 |
| 1611750101 | LIGHTING (| CONTACTOR | | | | |
| Unit values Totals | 2.00 12.00 | 137.00 \$822 | 55.00 \$330 | 0.00 \$0 | 6.00 0.00 \$0 | EA. 192.00 \$1,152 |
| 1611850101 | PHOTO SWIT | CH 50-500 | FC ADJUS | STABLE | | |
| Unit values Totals | 1.00 4.00 | 290.00 \$1,160 | 27.50 \$110 | 0.00 | 4.00 0.00 \$0 | EA. 317.50 \$1,270 |
| 1611870101 | LOW VOLTAG | E TRANS 1 | 15V-24V | | | |
| Unit values Totals | 0.67 0.67 | 64.00 \$64 | 18.35 \$18 | 0.00 \$0 | 1.00 0.00 \$0 | EA. 82.35 \$82 |
| 1611870102 | SWITCHING | RELAYS | | | | |
| Unit values Totals | 0.50 4.00 | 11.30 \$90 | 13.75 \$110 | 0.00 \$0 | 8.00 0.00 \$0 | EA. 25.05 \$200 |
| 1611950101 | 1/2" EMT | | | | | |
| Unit values Totals | 0.05 25.00 | 0.38 \$190 | 1.29 \$645 | 0.00 | 500.00 0.00 \$0 | LF 1.67 \$835 |
| U16 ELECTRICAL | 63 | \$2,542 | \$1,689 | \$0 | \$0 | \$4,231 |

| | ======= | ======= | ======= | ========= | ======= | ======== | | | |
|---|---------------------------------------|--------------|---------|-----------|---------|---|--|--|--|
| Line # | Description | | | | | | | | |
| ======================================= | Manhours | Matl | Labor | Equipment | Sub | Total | | | |
| | | | | | | ======= | | | |
| ESTIMATE TOTAL | 63 | \$17,799 | \$3,569 | \$70 | \$0 | \$21,438 | | | |
| SALES TAX MATL MARKUP | 5.00% 0.00% | \$890 \$0 | | | | • | | | |
| LABOR MARKUP EQUIPT MARKUP | 0.00% | Ų O | \$0 | \$0 | | | | | |
| SUB MARKUP | 0.00% | | | Ç | \$0 | | | | |
| CONTINGENCY BOND PROFIT | ONTINGENC 5.00% 5.00% 10.00% | \$18,689 | \$3,569 | \$70 | \$0 | \$22,328 \$1,116 \$1,116 \$2,233 | | | |
| JOB TOTAL | | | | | | \$26,794 | | | |

Estimate: BLDG 3807 Date: FEBRUARY 2, 1995
Description: CONVENTIONAL SKYLIGHT & CONTROLS
Project: HANGAR STUDY Bid Date: FEBRUARY 2, 1995

BLDG 3807

Location:

Job #: 94013.04 Sq. footage: City indx:Raleigh, NC

| SUMMARY |
|---------|
|---------|

| ======================================= | Manhours | Matl | Labor | Equipment | Sub | Total |
|--|---------------------------------------|---------------------|--------------------|-------------|------------|---|
| | | | | | ======= | ======= |
| U00 U16 ELECTRICAL | 0 63 | \$15,257 \$2,542 | \$1,880 \$1,689 | \$70 \$0 | \$0 \$0 | \$17,207 \$4,231 |
| TOTAL | 63 | \$17,799 | \$3,569 | \$70 | \$0 | \$21,438 |
| SALES TAX MATL MARKUP LABOR MARKUP | 5.00% 0.00% 0.00% | \$890 \$0 | \$0 | | | |
| EQUIPT MARKUP SUB MARKUP | 0.00% 0.00% | | γo | \$0 | \$0 | |
| CONTINGENCY BOND PROFIT | ONTINGENC 5.00% 5.00% 10.00% | \$18,689 | \$3,569 | \$70 | \$0 | \$22,328 \$1,116 \$1,116 \$2,233 |
| JOB TOTAL | | | | | | \$26,794 |

ENERGY CONSERVATION INVESTMENT PROGRAM (ECIP)

INSTALLATION & LOCATION: FORT BRAGG REGION NOS. 4 CENSUS: 3

PROJECT NO 5 TIME 5 2054 PROJECT NO. & TITLE: 3954 SKY LIGHTS & LIGHTING PRODUCTS @ HANGARS FISCAL YEAR 95 DISCRETE PORTION NAME: LIGHTING ANALYSIS DATE: 02-03-95 ECONOMIC LIFE 10 YEARS PREPARED BY: JAH 1. INVESTMENT A. CONSTRUCTION COST \$ 29241. 1462. B. SIOH 1462. C. DESIGN COST D. TOTAL COST (1A+1B+1C) \$ 32165. F. PUBLIC UTILITY COMPANY REBATE \$
G. TOTAL INVESTMENT (1D - 1D 0. 0. 32165. 2. ENERGY SAVINGS (+) / COST (-) DATE OF NISTIR 85-3273-X USED FOR DISCOUNT FACTORS OCT 1993 NGL 1/YR(2 54. 0. \$ 0. \$ UNIT COST SAVINGS ANNUAL \$ DISCOUNTED \$/ MWH(1) MWH/YR(2) SAVINGS(3) FACTOR(4) SAVINGS(5) FUEL 1875. 0. A. ELECT \$ 34.95 8.77 16446. 9.26 B. DIST \$.00 0. 0. \$ 0. 0. \$ 0. 0. \$ 0. 0. \$ 0. 0. \$ 0. 54. \$ 4623. 10.08 C. RESID \$.00 0. .00 10.39 D. NAT G \$ 0. E. COAL \$ 9.39 .00 0. F. LPG \$.00 8.78 0. M. DEMAND SAVINGS 8.49 23331. N. TOTAL 39776. 3. NON ENERGY SAVINGS(+) / COST(-) 254. A. ANNUAL RECURRING (+/-) (1) DISCOUNT FACTOR (TABLE A) 8.49 (2) DISCOUNTED SAVING/COST (3A X 3A1) 2156. B. NON RECURRING SAVINGS(+) / COSTS(-) SAVINGS(+) YR DISCNT DISCOUNTED

COST(-) OC FACTR SAVINGS(+),

(1) (2) (3) COST(-)(4) SAVINGS(+)/ ITEM d. TOTAL \$ 0. C. TOTAL NON ENERGY DISCOUNTED SAVINGS(+)/COST(-)(3A2+3Bd4)\$ 2156. 4. FIRST YEAR DOLLAR SAVINGS 2N3+3A+(3Bd1/(YRS ECONOMIC LIFE))\$ 6.59 YEARS 5. SIMPLE PAYBACK PERIOD (1G/4) \$ 41933. 6. TOTAL NET DISCOUNTED SAVINGS (2N5+3C) 7. SAVINGS TO INVESTMENT RATIO (SIR)=(6 / 1G)= 1.30 (IF < 1 PROJECT DOES NOT QUALIFY) 8. ADJUSTED INTERNAL RATE OF RETURN (AIRR): 5.87 %

LIFE CYCLE COST ANALYSIS SUMMARY

STUDY: 3954

| OF HANGAR FACILITIES AT SIMMONS ARMY AIRFIELD ECO 1: INTERIOR LIGHTING 16 DECEMBER 1994 | BUILDING #: 3954 - HANGAR BUILDING #: 3954 - HANGAR AREA USE: HOURS/DAY DEMAND CHARGE \$0.03495 PER KWH DEMAND CHARGE \$9.25 PER KW |
|---|--|
|---|--|

(4' FLUORESCENT LAMPS)

\$41 / YEAR

3,120 HRMR=

\$41 NEAR

NET MAINTENANCE SAVINGS

\$5.00 / 20,000 HOURS *

53 LAMPS @_

112 KWH/YR 0 WATTS 0 WATTS 36 WATTS 0 WATTS 0 WATTS (INCANDESCENT) (COMPACT FLUORESCENT) Ş \$13 MR \$25 MR 0.04 OF HANGAR FACILITIES AT SIMMONS ARMY AIRFIELD PER KWH PER KW 13 W/FIXT = 13 W/FIXT = 18 W/FIXT = 26 W/F COMPACT FLUORESCENT REPLACEMENT **NET DEMAND SAVINGS NET DOLLAR SAVINGS** \$0.03495 FORT BRAGG LIMITED ENERGY STUDY \$29 / YEAR \$1 / YEAR ECO ENERGY CONSUMPTION INTERIOR LIGHTING: INCANDESCENT LAMP REPLACEMENT LAMPS @ LAMPS @ LAMPS @ LAMPS @ ELECTRIC COSTS: ENERGY CHARGE DEMAND CHARGE **ECO 1: INTERIOR / EXTERIOR LIGHTING** \$28 MEAR ECO DEMAND MAINTENANCE SAVINGS 00000 3,120 HR/YR = 3,120 HR/YR = **16 DECEMBER 1994** 468 KWH/YR 356 KWH/YR 0.15 KW **NET MAINTENANCE SAVINGS** \$3.50 / 750 HOURS * 0 WATTS 0 WATTS 150 WATTS 0 WATTS 12 5 1 (1-YES, 0-NO) 52 W/FIXT = 60 W/FIXT = 75 W/FIXT = 90 W/FIXT = 100 W/FIX 3954 - HANGAR BASELINE ENERGY CONSUMPTION **NET ENERGY SAVINGS** 2 LAMPS @ EXISTING INCANDESCENTS BASELINE DEMAND BUILDING #: AREA USE: HOURS/DAY LAMPS @ LAMPS @ LAMPS @ LAMPS @ LAMPS @ DAYSWEEK PEAK USE

| FORT BRAGG LIMITED ENERGY STUDY OF HANGAR FACILITIES AT SIMMONS ARMY AIRFIELD ECO 1: INTERIOR / EXTERIOR LIGHTING 02 FEBRUARY 1995 | CONVENTIONAL SKY LIGHTS IN HANGARS | \$0.03495 | DEMAND CHARGE \$9.25 PER KW | REVISED USAGE: HOURS/YEAR 1,248 | 58,968 KWHIYR ECO ENERGY CONSUMPTION 23,587 KWHIYR | 18.9 KW ECO DEMAND 18.9 KW | 35,381 KWH/YR NET DEMAND SAVINGS \$2,098 /YR NET DOLLAR SAVINGS \$3,334 /YR | MAINTENANCE SAVINGS | .000 HOURS • 3,120 HR/YR = \$308 / YEAR (WITHOUT SKYLIGHTS) .000 HOURS • 1,248 HR/YR = \$123 / YEAR (WITH SKYLIGHTS) | IANCE SAVINGS \$185 MEAR |
|---|------------------------------------|---------------------------|--|------------------------------------|--|----------------------------|---|---------------------|--|--------------------------|
| FORT BRAGG L OF HANGAR FACILITIES | | BUILDING #: 3954 - HANGAR | WATTAGE_CONTROLLED: 18,900 W PEAK USE: 1 (1-YES, 0-NO) | CURRENT USAGE; HOURS/YEAR 3,120 | | BASELINE DEMAND 18.9 KW | NET ENERGY SAVINGS 35,381 KWI | MAINTE | 42 LAMPS @ \$47.00 / 20,000 HOURS • 42 LAMPS @ \$47.00 / 20,000 HOURS • | NET MAINTENANCE SAVINGS |

LIGHTING UPGRADE Estimate: Date: FEBRUARY 2, 1995 LIGHTING PRODUCT UPGRADE Description: Bid Date: FEBRUARY 2, 1995 HANGAR LIGHTING Project: BLDG 3954 Job #: 94013.04 Location: Sq. footage: City indx: Raleigh, NC Description Line # Equipment Manhours Matl Labor 0002000000 DEMOLITION, 2X4 FLUORESCENT FIXTURES 53.00 FIXTURE Unit values 0.00 0.49 13.35 0.00 0.00 13.35 Totals 25.97 \$0 \$708 \$0 \$0 \$708 0002010000 DEMOLITION, INCANDESCENT FIXTURES/EXIT SIGNS 2.00 FIXTURE Unit values 0.26 0.00 7.10 0.00 0.00 7.10 Totals 0.52 \$0 \$14 \$0 \$0 \$14 0002020000 DEMOLITION, 1X4 FLUORESCENT FIXTURES 23.00 FIXTURE Unit values 0.49 0.00 13.35 0.00 0.00 13.35 Totals \$0 \$307 11.27 \$0 \$0 \$307 0010000000 1X4 2-32 WATT FLUORESCENT LAMPS, SURFACE MOUNTED 10.00 FIXTURE Unit values 1.14 60.00 31.50 0.00 0.00 91.50 Totals 11.40 \$600 \$315 \$0 \$0 \$915 0010400000 1X4 2-32 WATT FLUORESCENT LAMPS, PENDANT MOUNTED 1.00 FIXTURE Unit values 1.14 39.00 31.50 0.00 0.00 70.50 Totals 1.14 \$39 \$32 \$0 \$0 \$71 0010500000 2X4 2-32 WATT FLUORESCENT LAMPS, RECESSED MOUNTED WITH REFLECTORS 53.00 FIXTURE Unit values 1.51 75.00 41.50 0.00 0.00 116.50 80.03 \$3,975 Totals \$2,200 \$0 \$0 \$6,175 0010600000 1X8 2-59 WATT FLUORESCENT LAMPS, PENDANT MOUNTED 12.00 FIXTURE Unit values 1.75 131.00 48.12 0.00 0.00 179.12 Totals 21.00 \$1,572 \$577 \$0 \$0 \$2,149 0011200000 18 WATT COMPACT FLUORESCENT FIXTURE GLOBE ASSEMBLY 2.00 FIXTURE Unit values 0.13 25.50 3.44 0.00 0.00 28.94 Totals 0.26 \$51 \$7 \$0 \$0 \$58

Description Line # Labor Equipment Sub Manhours Matl \$6,237 \$4,160 \$0 \$0 \$10,397 152 UOO \$6,237 \$4,160 \$0 \$0 \$10,397 ESTIMATE TOTAL 152 5.00% \$312 SALES TAX 0.00% \$0 MATL MARKUP 0.00% \$0 LABOR MARKUP \$0 EQUIPT MARKUP 0.00% SUB MARKUP 0.00% \$0 \$10,709 TOTAL BEFORE CONTINGENC \$6,549 \$4,160 \$0 \$0 \$535 CONTINGENCY 5.00% \$535 BOND 5.00% \$1,071 PROFIT 10.00% \$12,851 JOB TOTAL

Estimate: LIGHTING UPGRADE Date: FEBRUARY 2, 1995
Description: LIGHTING PRODUCT UPGRADE
Project: HANGAR LIGHTING Bid Date: FEBRUARY 2, 1995
Location: BLDG 3954 Job #: 94013.04

Job #: 94013.04

Sq. footage:

City indx:Raleigh, NC

| | Manhours | Matl | Labor | Equipment | Sub | Total |
|---|--|--------------|---------|-----------|-----|---------------------------------------|
| | | | | | | |
| 000 | 152 | \$6,237 | \$4,160 | \$0 | \$0 | \$10,397 |
| TOTAL | 152 | \$6,237 | \$4,160 | \$0 | \$0 | \$10,397 |
| SALES TAX MATL MARKUP LABOR MARKUP | 5.00% 0.00% C.00% | \$312 \$0 | \$0 | | | |
| EQUIPT MARKUP SUB MARKUP | 0.00% | | γo | \$0 | \$0 | |
| TOTAL BEFORE C CONTINGENCY BOND PROFIT | CONTINGENC 5.00% 5.00% 10.00% | \$6,549 | \$4,160 | \$0 | \$0 | \$10,709 \$535 \$535 \$1,071 |
| JOB TOTAL | | | • | | | \$12,851 |

Estimate: BLDG 3954 Date: FEBRUARY 2, 1995 Description: CONVENTIONAL SKYLIGHT & CONTROLS
Project: HANGAR STUDY Bid Date: FEBRUARY 2, 1995 Project: Location: BLDG 3954 Job #: 94013.04 City indx: Raleigh, NC Sq. footage: Line # Description Labor Equipment Sub Total Manhours Matl 0060000001 CONVENTIONAL SKYLIGHT WITH 4" INSULATED CURBS (DOUBLE PANED) 450.00 SQ. FT Unit values 0.00 19.56 2.41 0.09 0.00 22.05 Totals 0.00 \$8,802 \$1,085 \$41 \$0 \$9,928 UOO 0 \$8,802 \$1,085 \$41 \$0 \$9,928

| | | ======== | ======= | ======== | | ======== | | | |
|-----------------------|-----------------------------------|-------------------|----------------|-------------|-----------------------|--------------------------|--|--|--|
| Line # | Descripti | on | | | | | | | |
| | Manhours | Matl | Labor | Equipment | Sub | Total | | | |
| | | | | | | ======== | | | |
| 1611350023 | LOW VOLTA | GE WIRE #: | 18-4C | | | | | | |
| Unit values Totals | 1.23 12.30 | 15.40 \$154 | 34.00 \$340 | 0.00 \$0 | 10.00 0.00 \$0 | | | | |
| 1611750101 | LIGHTING | CONTACTOR | | | | | | | |
| Unit values Totals | 2.00 6.00 | 137.00 \$411 | 55.00 \$165 | 0.00 \$0 | 3.00 0.00 \$0 | EA. 192.00 \$576 | | | |
| 1611850101 | PHOTO SWITCH 50-500 FC ADJUSTABLE | | | | | | | | |
| Unit values Totals | 1.00 4.00 | 290.00 \$1,160 | 27.50 \$110 | 0.00 | 4.00 0.00 \$0 | EA. 317.50 \$1,270 | | | |
| 1611870101 | LOW VOLTA | SE TRANS 1 | 15V-24V | | | | | | |
| Unit values Totals | 0.67 0.67 | 64.00 \$64 | 18.35 \$18 | 0.00 | 1.00 0.00 \$0 | EA. 82.35 \$82 | | | |
| 1611870102 | SWITCHING | RELAYS | | | | | | | |
| Unit values Totals | 0.50 4.00 | 11.30 \$90 | 13.75 \$110 | 0.00 \$0 | 8.00 0.00 \$0 | EA. 25.05 \$200 | | | |
| 1611950101 | 1/2" EMT | | | | | | | | |
| Unit values Totals | 0.05 17.00 | 0.38 \$129 | 1.29 \$439 | 0.00 \$0 | 340.00 0.00 \$0 | LF 1.67 \$568 | | | |
| U16 ELECTRICAL | 44 | \$2,008 | \$1,182 | \$0 | \$0 | \$3,190 | | | |

| Line # | Description | | | | | | | |
|--|---------------------------------------|--------------|---------|-----------|-----|---------------------------------------|--|--|
| | Manhours | Matl | Labor | Equipment | Sub | Total | | |
| | | | | | | ======= | | |
| ESTIMATE TOTAL | 44 | \$10,810 | \$2,267 | \$41 | \$0 | \$13,118 | | |
| SALES TAX MATL MARKUP LABOR MARKUP | 5.00% 0.00% 0.00% | \$541 \$0 | ¢0 | | | | | |
| EQUIPT MARKUP SUB MARKUP | 0.00% | | \$0 | \$0 | \$0 | | | |
| TOTAL BEFORE COCONTINGENCY BOND PROFIT | ONTINGENC 5.00% 5.00% 10.00% | \$11,351 | \$2,267 | \$41 | \$0 | \$13,659 \$683 \$683 \$1,366 | | |
| JOB TOTAL | | | | | | \$16,390 | | |

Estimate: BLDG 3954 Date: FEBRUARY 2, 1995
Description: CONVENTIONAL SKYLIGHT & CONTROLS
Project: HANGAR STUDY Bid Date: FEBRUARY 2, 1995
Location: BLDG 3954 Job #: 94013.04
Sg. footage: City indx:Raleigh, NC

FEBRUARY 2, 1995

Sq. footage:

City indx: Raleigh, NC

SUMMARY

| SUPPLIA I | | | | | | | | |
|--|---------------------------------------|--------------------|--------------------|-------------|------------|---------------------------------------|--|--|
| | Manhours | Matl | Labor | Equipment | Sub | Total | | |
| | | | | | | ======= | | |
| U00 U16 ELECTRICAL | 0 44 | \$8,802 \$2,008 | \$1,085 \$1,182 | \$41 \$0 | \$0 \$0 | \$9,928 \$3,190 | | |
| TOTAL | 44 | \$10,810 | \$2,267 | \$41 | \$0 | \$13,118 | | |
| SALES TAX MATL MARKUP LABOR MARKUP | 5.00% 0.00% 0.00% | \$541 \$0 | ¢0 | | | | | |
| EQUIPT MARKUP SUB MARKUP | 0.00% | | \$0 | \$0 | \$0 | | | |
| TOTAL BEFORE CO CONTINGENCY BOND PROFIT | ONTINGENC 5.00% 5.00% 10.00% | \$11,351 | \$2,267 | \$41 | \$0 | \$13,659 \$683 \$683 \$1,366 | | |
| JOB TOTAL | | | | | | \$16,390 | | |

LIFE CYCLE COST ANALYSIS SUMMARY

ENERGY CONSERVATION INVESTMENT PROGRAM (ECIP)

LCCID FY95 (92) INSTALLATION & LOCATION: FORT BRAGG REGION NOS. 4 CENSUS: 3 PROJECT NO. & TITLE: 3962 SKY LIGHTS & LIGHTING PRODUCTS @ HANGARS FISCAL YEAR 95 DISCRETE PORTION NAME: LIGHTING ANALYSIS DATE: 02-03-95 ECONOMIC LIFE 10 YEARS PREPARED BY: JAH 1. INVESTMENT A. CONSTRUCTION COST \$ 47814. B. SIOH \$
C. DESIGN COST \$ 2391. 2391. D. TOTAL COST (1A+1B+1C) \$ 52595. E. SALVAGE VALUE OF EXISTING EQUIPMENT \$ 0. F. PUBLIC UTILITY COMPANY REBATE 0. G. TOTAL INVESTMENT (1D - 1E - 1F) 52595. 2. ENERGY SAVINGS (+) / COST (-) DATE OF NISTIR 85-3273-X USED FOR DISCOUNT FACTORS OCT 1993 UNIT COST SAVINGS ANNUAL \$ DISCOUNT DISCOUNTED \$/ MWH(1) MWH/YR(2) SAVINGS(3) FACTOR(4) SAVINGS(5) FUEL 8.77 70949. 9.26 0. 10.08 10.39 0. 0. 9.39 0. 8.78 0. 55015. 8.49 125964. 3. NON ENERGY SAVINGS(+) / COST(-) \$ 7458. A. ANNUAL RECURRING (+/-)8.49 (1) DISCOUNT FACTOR (TABLE A) (2) DISCOUNTED SAVING/COST (3A X 3A1) \$ 63318. B. NON RECURRING SAVINGS(+) / COSTS(-) SAVINGS(+) YR DISCNT DISCOUNTED

COST(-) OC FACTR SAVINGS(+)/

(1) (2) (3) COST(-)(4) ITEM d. TOTAL \$ 0. C. TOTAL NON ENERGY DISCOUNTED SAVINGS(+)/COST(-)(3A2+3Bd4)\$ 63318. 4. FIRST YEAR DOLLAR SAVINGS 2N3+3A+(3Bd1/(YRS ECONOMIC LIFE))\$ 22028. 5. SIMPLE PAYBACK PERIOD (1G/4) 2.39 YEARS 6. TOTAL NET DISCOUNTED SAVINGS (2N5+3C) \$ 189282. 7. SAVINGS TO INVESTMENT RATIO (SIR) = (6 / 1G) =3.60 (IF < 1 PROJECT DOES NOT QUALIFY) 17.19 % 8. ADJUSTED INTERNAL RATE OF RETURN (AIRR):

35,733 KWH/YR 3,364 WATTS 870 WATTS 6,844 WATTS 0 WATTS **375 WATTS** Ž \$758 MR \$1,502 MR (4' FLUORESCENT LAMPS) 11.45 OF HANGAR FACILITIES AT SIMMONS ARMY AIRFIELD PER KWH PER KW 58 W/FIXT = 87 W/FIXT = 118 W/FIXT = 58 W/FIXT = 125 W/FIXT = NET DEMAND SAVINGS NET DOLLAR SAVINGS FORT BRAGG LIMITED ENERGY STUDY \$0.03495 REPLACEMENT FIXTURE DATA \$8 / YEAR ECO ENERGY CONSUMPTION INTERIOR LIGHTING: FLUORESCENT FIXTURE REPLACEMENT 0 2 LAMP U@ 58 2 LAMP @ 10 3 LAMP @ 58 4 LAMP @ ELECTRIC COSTS: ENERGY CHARGE DEMAND CHARGE 3 2 LAMP @ **ECO 1: INTERIOR / EXTERIOR LIGHTING** SB IYEAR ECO DEMAND MAINTENANCE SAVINGS 3,120 HR/YR= 4 FOOT 2 F001 **16 DECEMBER 1994** 57,034 KWH/YR 21,300 KWH/YR 18.28 KW **NET MAINTENANCE SAVINGS** \$5.00 / 20,000 HOURS • 5,336 WATTS 0 WATTS 12,512 WATTS 0 WATTS 432 WATTS 92 W/FIXT = 137 W/FIXT = 184 W/FIXT = 92 W/FIXT = 144 W/FIXT = 3962 - HANGAR BASELINE ENERGY CONSUMPTION **NET ENERGY SAVINGS** 2|2| 10 LAMPS @ EXISTING FIXTURE DATA 2 LAMP U @ AREA USE:_ HOURS/DAY BUILDING #: 58 2 LAMP @ 3 LAMP @ 68 4 LAMP @ BASELINE DEMAND DAYSWEEK 3 2 LAMP @ 4 FOOT 8 FOOT

82,555 KWH/YR 0 WATTS 0 WATTS 0 WATTS 12,600 WATTS 0 WATTS (INCANDESCENT) (HIGH PRESSURE SODIUM) \$2,098 MR \$6,426 MR 12.60 KW OF HANGAR FACILITIES AT SIMMONS ARMY AIRFIELD PER KWH PER KW WATTS = WATTS = WATTS = 300 WATTS = WATTS = **NET DEMAND SAVINGS** NET DOLLAR SAVINGS \$0.03495 FORT BRAGG LIMITED ENERGY STUDY REPLACEMENT FIXTURE DATA \$7,174 / YEAR \$437 / YEAR ECO ENERGY CONSUMPTION ELECTRIC COSTS: ENERGY CHARGE DEMAND CHARGE INTERIOR LIGHTING: LIGHTING REPLACEMENT HPS @ MH @ MH @ HPS @ ECO 1: INTERIOR / EXTERIOR LIGHTING 16 DECEMBER 1994 \$6,737 N'EAR ECO DEMAND MAINTENANCE SAVINGS 20000 6,570 HR/YR = 6,570 HR/YR = 208,388 KWH/YR 123,833 KWH/YR Ş **NET MAINTENANCE SAVINGS** 31.50 \$26.00 /1,000 HOURS * \$38.00 /24,000 HOURS * 31,500 WATTS 0 WATTS 0 WATTS 0 WATTS 1 (1-YES, 0-NO) 750 WATTS = WATTS = WATTS = WATTS = WATTS = BUILDING #: 3962 - HANGAR BASELINE ENERGY CONSUMPTION **NET ENERGY SAVINGS** 42 LAMPS @ ∞ો⊳ EXISTING FIXTURE DATA INCAND @ QUARTZ @ QUARTZ @ BASELINE DEMAND DAYSAWEEK PEAK USE AREA USE: HOURS/DAY 42

| FORT BRAGG LIMITED ENERGY STUDY ANGAR FACILITIES AT SIMMONS ARMY AIRFIELD ECO 1: INTERIOR / EXTERIOR LIGHTING 16 DECEMBED 1994 | INTERIOR LIGHTING: INCANDESCENT LAMP REPLACEMENT | ANGAR ELECTRIC COSTS; ENERGY CHARGE \$0.03495 PER KWH DEMAND CHARGE \$9.25 PER KW 1 (1-YES, 0-NO) | COMPACT FLUORESCENT REPLACEMENT | 2 W/FIXT = 0 WATTS 0 WATTS 0 W/FIXT = 0 WATTS 5 W/FIXT = 0 WATTS 6 W/FIXT = 0 WATTS 0 WATTS 0 WATTS 0 WATTS 0 WATTS 0 WATTS 0 WATTS 0 WATTS 0 WATTS | IPTION 4,680 KWH/YR ECO ENERGY CONSUMPTION 1,123 KWH/YR | 1.50 KW ECO DEMAND 0.38 KW | JINGS 3,557 KWH/YR NET DEMAND SAVINGS \$127 /YR NET DOLLAR SAVINGS \$251 /YR | MAINTENANCE SAVINGS | @ \$3.50 / 750 HOURS • 3,120 HR/YR = \$291 / YEAR (INCANDESCENT) @ \$2.00 / 10,000 HOURS • 3,120 HR/YR = \$12 / YEAR (COMPACT FLUORESCENT) | NET MAINTENANCE CAUNIC |
|--|--|--|---------------------------------|---|---|----------------------------|--|---------------------|---|------------------------|
| FOR OF HANGAR | | | EXISTING INCANDESCENTS | LAMPS @ 52 W/FIXT = LAMPS @ 60 W/FIXT = Z0 LAMPS @ 75 W/FIXT = LAMPS @ 90 W/FIXT = LAMPS @ 100 W/FIXT = | BASELINE ENERGY CONSUMPTION | BASELINE DEMAND | NET ENERGY SAVINGS | | 20 LAMPS @ \$3.50 20 LAMPS @ \$2.00 | NET MAIN |

124,173 KWHIYR 31.5 KW \$3,497 MR \$6,390 MR (WITHOUT SKYLIGHTS) (WITHOUT SKYLIGHTS) (WITH SKYLIGHTS) (WITH SKYLIGHTS) OF HANGAR FACILITIES AT SIMMONS ARMY AIRFIELD PER KWH PER KW **NET DEMAND SAVINGS** NET DOLLAR SAVINGS \$0.03495 FORT BRAGG LIMITED ENERGY STUDY 3,942 \$648 / YEAR \$437 / YEAR \$389 / YEAR \$262 / YEAR ECO ENERGY CONSUMPTION HOURSMEAR ELECTRIC COSTS: ENERGY CHARGE DEMAND CHARGE **ECO 1: INTERIOR / EXTERIOR LIGHTING** REVISED USAGE: CONVENTIONAL SKY LIGHTS IN HANGARS \$434 N'EAR **ECO DEMAND** MAINTENANCE SAVINGS 6,570 HR/YR = 3,942 HR/YR = 1,942 HR/YR HR/YR = 1,942 HR/Y 02 FEBRUARY 1995 206,955 KWH/YR 82,782 KWH/YR Š **NET MAINTENANCE SAVINGS** \$47.00 / 20,000 HOURS * \$38.00 / 24,000 HOURS * \$47.00 / 20,000 HOURS * \$38.00 / 24,000 HOURS * \$38.00 31.5 1 (1-YES, 0-NO) 31,500 W 6,570 BUILDING #: 3962 - HANGAR BASELINE ENERGY CONSUMPTION **NET ENERGY SAVINGS** 42 LAMPS @ WATTAGE CONTROLLED: PEAK USE: CURRENT USAGE: HOURS/YEAR **BASELINE DEMAND**

_____ FEBRUARY 2, 1995 LIGHTING UPGRADE Date: Estimate: LIGHTING PRODUCT UPGRADE Description: Bid Date: FEBRUARY 2, 1995 HANGAR LIGHTING Project: Job #: 94013.04 BLDG 3962 Location: City indx: Raleigh, NC Sg. footage: ______ Description Line # Equipment Sub Matl Labor Manhours _______ DEMOLITION, 2X4 FLUORESCENT FIXTURES 0002000000 10.00 FIXTURE 0.49 0.00 13.35 0.00 0.00 13.35 Unit values \$0 Totals 4.90 \$0 \$134 \$0 \$134 DEMOLITION, INCANDESCENT FIXTURES/EXIT SIGNS 0002010000 20.00 FIXTURE 0.00 0.00 7.10 7.10 Unit values 0.26 0.00 \$0 \$0 \$142 Totals 5.20 \$0 \$142 DEMOLITION, 1X4 FLUORESCENT FIXTURES 0002020000 119.00 FIXTURE 0.00 0.00 0.00 13.35 13.35 Unit values 0.49 \$0 \$0 Totals \$1,589 58.31 \$0 \$1,589 DEMOLITION, HIGH BAY FIXTURES 0002030000 42.00 FIXTURE 0.00 27.50 0.00 0.00 27.50 Unit values 1.00 \$0 \$1,155 \$0 \$1,155 \$0 Totals 42.00 1X4 2-32 WATT FLUORESCENT LAMPS, PENDANT 0010400000 58.00 FIXTURE MOUNTED 39.00 70.50 31.50 0.00 0.00 1.14 Unit values \$1,827 \$0 \$4,089 \$2,262 \$0 66.12 Totals 1X8 2-59 WATT FLUORESCENT LAMPS, PENDANT 0010600000 3.00 FIXTURE MOUNTED 0.00 0.00 179.12 131.00 48.12 Unit values 1.75 \$144 \$0 \$537 Totals 5.25 \$393 18 WATT COMPACT FLUORESCENT FIXTURE 0011200000 20.00 FIXTURE GLOBE ASSEMBLY 0.00 0.00 28.94 3.44 Unit values 0.13 25.50 \$579 \$0 \$69 \$0 Totals 2.60 \$510 250 WATT HIGH PRESSURE SODIUM FIXTURE 0011300000 42.00 FIXTURE WITH COLOR CORRECTION 55.00 0.00 0.00 269.00 2.00 214.00 Unit values \$0 \$11,298 \$0 Totals 84.00 \$8,988 \$2,310 2X4 3-32 WATT FLUORESCENT LAMPS, SURFACE 0011400000 10.00 FIXTURE MOUNTED WITH REFLECTOR

| 02-Feb-95 | | MeansD | ata for Lot | Page 2 | | | |
|-----------------------|---------------------|------------------|------------------|--------------|-------|-------------------|--|
| Unit values Totals | 1.51 15.10 | 79.00 \$790 | 41.50 \$415 | 0.00 | 0.00 | 120.50 \$1,205 | |
| 0011500000 | 1X4 4-32 MOUNTED | WATT FLUO | RESCENT LAM | IPS, PENDANT | 58.00 | FIXTURE | |
| Unit values Totals | 1.14 66.12 | 49.00 \$2,842 | 31.50 \$1,827 | 0.00 \$0 | 0.00 | 80.50 \$4,669 | |

TOTAL BEFORE CONTINGENC

5.00%

5.00%

10.00%

CONTINGENCY

BOND

PROFIT

JOB TOTAL

Description Manhours Matl Labor Equipment Sub _______ 350 \$15,785 \$9,612 \$0 \$0 UOO \$25,397 ESTIMATE TOTAL 350 \$15,785 \$9,612 \$0 \$0 \$25,397 SALES TAX 5.00% \$789 MATL MARKUP 0.00% \$0 \$0 LABOR MARKUP 0.00% EQUIPT MARKUP 0.00% \$0 SUB MARKUP 0.00% \$0

\$16,574 \$9,612

\$0

\$0

\$26,186 \$1,309 \$1,309

\$2,619

\$31,424

Estimate: LIGHTING UPGRADE Date: Description: LIGHTING PRODUCT UPGRADE

FEBRUARY 2, 1995

Project: HANGAR LIGHTING Bid Date: FEBRUARY 2, 1995 Location: BLDG 3962 Job #: 94013.04

Sq. footage:

City indx:Raleigh, NC

| | | | | | | S | U | M | AI | R | Y | |
|------|------|------|------|-------|---|---|---|---|----|---|---|---|
| | | | | _ | _ | _ | _ | | | _ | - | • |

| | Manhours | Matl | Labor | Equipment | Sub | Total |
|---|--|--------------|---------|-----------|-----|---|
| | | <u> </u> | | | | |
| uoo | 350 | \$15,785 | \$9,612 | \$0 | \$0 | \$25,397 |
| TOTAL | 350 | \$15,785 | \$9,612 | \$0 | \$0 | \$25,397 |
| SALES TAX MATL MARKUP LABOR MARKUP | 5.00% 0.00% 0.00% | \$789 \$0 | \$0 | | | |
| EQUIPT MARKUP SUB MARKUP | 0.00% 0.00% | | | \$0 | \$0 | |
| TOTAL BEFORE CONTINGENCY BOND PROFIT | CONTINGENC 5.00% 5.00% 10.00% | \$16,574 | \$9,612 | \$0 | \$0 | \$26,186 \$1,309 \$1,309 \$2,619 |
| JOB TOTAL | | | | | | \$31,424 |

Estimate: BLDG 3962 Date: FEBRUARY 2, 1995
Description: CONVENTIONAL SKYLIGHT & CONTROLS
Project: HANGAR STUDY Bid Date: FEBRUARY 2, 1995
Location: BLDG 3962 Job #: 94013.04
Sq. footage: City indx:Raleigh, NC Sq. footage:

| Line # | - | Description | | | | | | | | |
|-----------|----------|-------------|-------|-----------|--------|-----------|--|--|--|--|
| | Manhours | Matl | Labor | Equipment | Sub | Total | | | | |
| ========= | | -===== | | | ====== | ========= | | | | |

| 0060000001 | | | HT WITH 4" | INSULATED | CURBS | | |
|-------------|------------|---------|------------|-----------|--------|---------|--|
| | (DOUBLE P. | • | | | 450.00 | SQ. FT | |
| Unit values | 0.00 | 19.56 | 2.41 | 0.09 | 0.00 | 22.06 | |
| Totals | 0.00 | \$8,802 | \$1,085 | \$41 | \$0 | \$9,928 | |
| *** | • | 40.000 | • • • • • | * | | | |
| U00 | 0 | \$8,802 | \$1,085 | \$41 | \$0 | \$9,928 | |

| Line # | Description | on | | | | |
|-----------------------|---------------|-------------------|----------------|-------------|-------------|-------------------|
| | Manhours | Matl | Labor | Equipment | Sub | Total |
| | | | | | | _======== |
| 1611350023 | LOW VOLTA | GE WIRE #: | 18-4C | | 10.00 | |
| Unit values | 1.23 | 15.40 | 34.00 | 0.00 | 10.00 | CLF 49.40 |
| Totals | 12.30 | \$154 | \$340 | | \$0 | \$494 |
| 1611750101 | LIGHTING (| CONTACTOR | | | | |
| Unit values | 2.00 | 137.00 | 55.00 | 0 00 | 3.00 | |
| Totals | 6.00 | \$411 | \$165 | 0.00 \$0 | 0.00 \$0 | 192.00 \$576 |
| 1611850101 | PHOTO SWIT | rch 50-500 | FC ADJU | STABLE | | |
| Unit values | 1 00 | 202 00 | 25 50 | 0.00 | 4.00 | |
| Totals | 1.00 4.00 | 290.00 \$1,160 | 27.50 \$110 | 0.00 \$0 | 0.00 \$0 | 317.50 \$1,270 |
| 1611870101 | LOW VOLTA | GE TRANS | 115V-24V | | | |
| IIni +lu | 0 67 | 64.00 | 10 25 | 0.00 | 1.00 | |
| Unit values Totals | 0.67 0.67 | 64.00 \$64 | 18.35 \$18 | 0.00 \$0 | 0.00 \$0 | 82.35 \$82 |
| 1611870102 | SWITCHING | RELAYS | | | | |
| 77-14 7 | 2 52 | 44 00 | 10 55 | 2 22 | 8.00 | |
| Unit values Totals | 0.50 4.00 | 11.30 \$90 | 13.75 \$110 | 0.00 \$0 | 0.00 \$0 | 25.05 \$200 |
| 1611950101 | 1/2" EMT | | | | | |
| 77 | | | | | 340.00 | |
| Unit values Totals | 0.05 17.00 | 0.38 \$129 | 1.29 \$439 | 0.00 \$0 | 0.00 \$0 | 1.67 \$568 |
| U16 ELECTRICAL | 44 | \$2,008 | \$1,182 | \$0 | \$0 | \$3,190 |

JOB TOTAL

\$16,390

| Line # | Descripti | on | | | | |
|---|---------------------------------------|--------------|---------|-----------|-----|---------------------------------------|
| | Manhours | Matl | Labor | Equipment | Sub | Total |
| | | | | | | |
| ESTIMATE TOTAL | 44 | \$10,810 | \$2,267 | \$41 | \$0 | \$13,118 |
| SALES TAX MATL MARKUP | 5.00% 0.00% | \$541 \$0 | | | | |
| LABOR MARKUP EQUIPT MARKUP | 0.00% 0.00% | | \$0 | \$0 | | |
| SUB MARKUP | 0.00% | | | | \$0 | |
| TOTAL BEFORE C CONTINGENCY BOND PROFIT | ONTINGENC 5.00% 5.00% 10.00% | \$11,351 | \$2,267 | \$41 | \$0 | \$13,659 \$683 \$683 \$1,366 |

______ Estimate: BLDG 3962 Date: FEBRUARY 2, 1995
Description: CONVENTIONAL SKYLIGHT & CONTROLS
Project: HANGAR STUDY Bid Date: FEBRUARY 2, 1995
Location: BLDG 3962 Job #: 94013.04
Sq. footage: City indx:Raleigh, NC

| | TT | n | 7 | D37 | ٠ |
|-----|----|----|---|-----|---|
| - 5 | UI | ΜM | А | RY | |

| | Manhours | Matl | Labor | Equipment | Sub | Total | | | |
|--|---------------------------------------|--------------------|--------------------|-------------|------------|---------------------------------------|--|--|--|
| ======================================= | | | | | | | | | |
| U00 U16 ELECTRICAL | 0 44 | \$8,802 \$2,008 | \$1,085 \$1,182 | \$41 \$0 | \$0 \$0 | \$9,928 \$3,190 | | | |
| TOTAL | 44 | \$10,810 | \$2,267 | \$41 | \$0 | \$13,118 | | | |
| SALES TAX MATL MARKUP LABOR MARKUP | 5.00% 0.00% 0.00% | \$541 \$0 | \$0 | | | | | | |
| EQUIPT MARKUP SUB MARKUP | 0.00% 0.00% | | | \$0 | \$0 | | | | |
| TOTAL BEFORE COCONTINGENCY BOND PROFIT | ONTINGENC 5.00% 5.00% 10.00% | \$11,351 | \$2,267 | \$41 | \$0 | \$13,659 \$683 \$683 \$1,366 | | | |
| JOB TOTAL | | | | | | \$16,390 | | | |

LIFE CYCLE COST ANALYSIS SUMMARY
ENERGY CONSERVATION INVESTMENT PROGRAM (ECIP)

LCCID FY95 (92) INSTALLATION & LOCATION: FORT BRAGG REGION NOS. 4 CENSUS: 3 PROJECT NO. & TITLE: 4137 SKY LIGHTS & LIGHTING PRODUCTS @ HANGARS FISCAL YEAR 95 DISCRETE PORTION NAME: LIGHTING ANALYSIS DATE: 02-03-95 ECONOMIC LIFE 10 YEARS PREPARED BY: JAH 1. INVESTMENT A. CONSTRUCTION COST \$ 37287. B. SIOH \$
C. DESIGN COST \$ 1864. 1864. D. TOTAL COST (1A+1B+1C) \$ 41016. E. SALVAGE VALUE OF EXISTING EQUIPMENT \$ F. PUBLIC UTILITY COMPANY REBATE \$ G. TOTAL INVESTMENT (1D - 1E - 1F) 41016. 2. ENERGY SAVINGS (+) / COST (-) DATE OF NISTIR 85-3273-X USED FOR DISCOUNT FACTORS OCT 1993 UNIT COST SAVINGS ANNUAL \$ DISCOUNT DISCOUNTED \$/ MWH(1) MWH/YR(2) SAVINGS(3) FACTOR(4) SAVINGS(5) FUEL 45718. 0. 0. 0. 0. \$ 0. \$ 53198. 98916. 3. NON ENERGY SAVINGS(+) / COST(-) \$ 619. 8.49 A. ANNUAL RECURRING (+/-) (1) DISCOUNT FACTOR (TABLE A) (2) DISCOUNTED SAVING/COST (3A X 3A1) 5255. B. NON RECURRING SAVINGS(+) / COSTS(-) SAVINGS(+) YR DISCNT DISCOUNTED

COST(-) OC FACTR SAVINGS(+),

(1) (2) (3) COST(-)(4) DISCOUNTED ITEM SAVINGS(+)/ d. TOTAL \$ 0. C. TOTAL NON ENERGY DISCOUNTED SAVINGS(+)/COST(-)(3A2+3Bd4)\$ 5255. 4. FIRST YEAR DOLLAR SAVINGS 2N3+3A+(3Bd1/(YRS ECONOMIC LIFE))\$ 12098. 5. SIMPLE PAYBACK PERIOD (1G/4) 3.39 YEARS 6. TOTAL NET DISCOUNTED SAVINGS (2N5+3C) \$ 104171. 7. SAVINGS TO INVESTMENT RATIO (SIR) = (6 / 1G) =2.54 (IF < 1 PROJECT DOES NOT QUALIFY) 8. ADJUSTED INTERNAL RATE OF RETURN (AIRR): 13.17 %

14,283 KWH/YR 0 WATTS 0 WATTS 0 WATTS 3,828 WATTS **750 WATTS** Ž (4' FLUORESCENT LAMPS) \$262 NR \$519 NR 4.58 OF HANGAR FACILITIES AT SIMMONS ARMY AIRFIELD PER KWH PER KW 58 W/FIXT = 87 W/FIXT = 118 W/FIXT = 58 W/FIXT = 125 W/FIXT = NET DEMAND SAVINGS NET DOLLAR SAVINGS \$0.03495 FORT BRAGG LIMITED ENERGY STUDY REPLACEMENT FIXTURE DATA \$0 / YEAR ECO ENERGY CONSUMPTION INTERIOR LIGHTING: FLUORESCENT FIXTURE REPLACEMENT 0 2 LAMP U@ 66 2 LAMP @ 0 3 LAMP @ 0 4 LAMP @ ELECTRIC COSTS: ENERGY CHARGE DEMAND CHARGE 6 2 LAMP @ ECO 1: INTERIOR / EXTERIOR LIGHTING 16 DECEMBER 1994 \$0 MEAR ECO DEMAND MAINTENANCE SAVINGS HRMR = **4 FOOT** 2 F00T 21,640 KWH/YR 7,357 KWH/YR Σ **NET MAINTENANCE SAVINGS** 6.94 \$5.00 / 20,000 HOURS • 6,072 WATTS 0 WATTS 0 WATTS 0 WATTS 864 WATTS 92 W/FIXT = 137 W/FIXT = 184 W/FIXT = 144 W/FIXT = 92 W/FIXT BUILDING #: 4137 - HANGAR **NET ENERGY SAVINGS** BASELINE ENERGY CONSUMPTION 2 2 LAMPS @ EXISTING FIXTURE DATA 2 LAMP U @ AREA USE: HOURS/DAY DAYS/WEEK 66 2 LAMP @ 3 LAMP @ 4 LAMP @ BASELINE DEMAND 6 2 LAMP @ 2 FOOT 4 FOOT 8 FOOT

67,392 KWH/YR 0 WATTS 0 WATTS 21,600 WATTS 0 WATTS Ž \$3,330 MR \$6,601 MR 21.60 (MERCURY VAPOR) (METAL HALIDE) OF HANGAR FACILITIES AT SIMMONS ARMY AIRFIELD PER KWH PER KW WATTS = WATTS = 450 WATTS = WATTS = NET DEMAND SAVINGS NET DOLLAR SAVINGS \$0.03495 FORT BRAGG LIMITED ENERGY STUDY \$437 / YEAR \$352 / YEAR REPLACEMENT FIXTURE DATA ECO ENERGY CONSUMPTION ELECTRIC COSTS: ENERGY CHARGE DEMAND CHARGE INTERIOR LIGHTING: LIGHTING REPLACEMENT **ECO 1: INTERIOR / EXTERIOR LIGHTING** \$85 NEAR ECO DEMAND MAINTENANCE SAVINGS 00000 3,120 HRYR = 3,120 HRYR = **16 DECEMBER 1994** 160,992 KWH/YR 93,600 KWH/YR 51.60 KW **NET MAINTENANCE SAVINGS** \$70.00 / 24,000 HOURS • \$47.00 / 20,000 HOURS • 0 WATTS 0 WATTS 51,600 WATTS 0 WATTS 12 5 1 (1-YES, 0-NO) 1075 WATTS = WATTS = WATTS = WATTS = WATTS = BUILDING #: 4137 - HANGAR BASELINE ENERGY CONSUMPTION **NET ENERGY SAVINGS** 48 LAMPS @ EXISTING FIXTURE DATA INCAND @ QUARTZ @ QUARTZ @ AREA USE:__ HOURS/DAY BASELINE DEMAND DAYSWEEK PEAK USE @@ } } 48

1,348 KWHYR 26 WATTS 0 WATTS 0 WATTS 406 WATTS (COMPACT FLUORESCENT) Š \$276 NR \$547 MR 0.43 (INCANDESCENT) (INCANDESCENT) 0 LAMPS @ 13 W/FIXT = 2 LAMPS @ 13 W/FIXT = 6 LAMPS @ 18 W/FIXT = 6 LAMPS @ 26 W/FIXT = 7 2 LAMP @ 58 W/FIXT = 6 CFUOR FOOT FLUORESCENT FIXTURE) OF HANGAR FACILITIES AT SIMMONS ARMY AIRFIELD PER KWH PER KW COMPACT FLUORESCENT REPLACEMENT **NET DEMAND SAVINGS NET DOLLAR SAVINGS** FORT BRAGG LIMITED ENERGY STUDY \$0.03495 \$29 / YEAR \$306 / YEAR \$1 / YEAR \$11 / YEAR ECO ENERGY CONSUMPTION INTERIOR LIGHTING: INCANDESCENT LAMP REPLACEMENT 0 LAMPS @ 2 LAMPS @ 0 LAMPS @ 1 Z LAMPS @ 7 2 LAMP @ 0 ELECTRIC COSTS: ENERGY CHARGE DEMAND CHARGE **ECO 1: INTERIOR / EXTERIOR LIGHTING** \$323 NEAR ECO DEMAND MAINTENANCE SAVINGS HRYR = HRYR = HRYR = HRYR = **16 DECEMBER 1994** 3,120 9,110 KWH/YR 7,763 KWH/YR ξ **NET MAINTENANCE SAVINGS** \$3.50 / 750 HOURS • \$5.25 / 750 HOURS • \$2.00 / 10,000 HOURS • \$5.00 / 10,000 HOURS • \$5.00 / 20,000 HOURS • 2.92 0 WATTS 0 WATTS 2,800 WATTS 0 WATTS 120 WATTS 12 5 1 (1-YES, 0-NO) 52 W/FIXT = 60 W/FIXT = 75 W/FIXT = 90 W/FIXT = 200 W/FIXT = 700 W/FIX BUILDING #: 4137 - HANGAR BASELINE ENERGY CONSUMPTION **NET ENERGY SAVINGS** 2 LAMPS @ 14 LAMPS @ 2 LAMPS @ 14 LAMPS @ EXISTING INCANDESCENTS LAMPS @ LAMPS @ LAMPS @ LAMPS @ LAMPS @ BASELINE DEMAND AREA USE: HOURS/DAY DAYSWEEK PEAK USE 14

26,957 KWH/YR 21.6 KW \$2,398 MR \$3,811 MR (WITHOUT SKYLIGHTS) (WITH SKYLIGHTS) OF HANGAR FACILITIES AT SIMMONS ARMY AIRFIELD PER KWH PER KW NET DEMAND SAVINGS NET DOLLAR SAVINGS \$0.03495 FORT BRAGG LIMITED ENERGY STUDY 1,248 \$352 / YEAR \$141 / YEAR ECO ENERGY CONSUMPTION REVISED USAGE: HOURS/YEAR ELECTRIC COSTS; ENERGY CHARGE DEMAND CHARGE ECO 1: INTERIOR / EXTERIOR LIGHTING 02 FEBRUARY 1995 CONVENTIONAL SKY LIGHTS IN HANGARS \$211 NEAR **ECO DEMAND** MAINTENANCE SAVINGS 3,120 HR/YR = 1,248 HR/YR = 67,392 KWH/YR 40,435 KWH/YR ₹ **NET MAINTENANCE SAVINGS** 21.6 \$47.00 / 20,000 HOURS * \$47.00 / 20,000 HOURS * 21,600 W 1 (1-YES, 0-NO) 3,120 BUILDING #: 4137 - HANGAR BASELINE ENERGY CONSUMPTION **NET ENERGY SAVINGS** 48 LAMPS @____48 LAMPS @__ WATTAGE CONTROLLED: PEAK USE: CURRENT USAGE: HOURS/YEAR BASELINE DEMAND

Unit values

Totals

0.13

0.26

25,50

\$51

LIGHTING UPGRADE Date: FEBRUARY 2, 1995 Estimate: LIGHTING PRODUCT UPGRADE Description: HANGAR LIGHTING Bid Date: FEBRUARY 2, 1995 Project: Job #: 94013.04 BLDG 4137 Location: City indx:Raleigh, NC Sq. footage: ___________ Description Line # Manhours Matl Labor Equipment Sub ______ 0002010000 DEMOLITION, INCANDESCENT FIXTURES/EXIT SIGNS 16.00 FIXTURE 0.00 0.00 Unit values 0.26 7.10 0.00 7.10 Totals 4.16 \$0 \$114 \$0 \$0 \$114 0002020000 DEMOLITION, 1X4 FLUORESCENT FIXTURES 72.00 FIXTURE 0.00 0.00 0.00 13.35 Unit values 0.49 13.35 Totals 35.28 \$0 \$961 \$0 \$0 \$961 0002030000 DEMOLITION, HIGH BAY FIXTURES 48.00 FIXTURE 0.00 0.00 Unit values 1.00 27.50 0.00 27.50 Totals \$0 \$1,320 \$0 \$0 \$1,320 48.00 1X4 2-32 WATT FLUORESCENT LAMPS, SURFACE 0010000000 7.00 FIXTURE MOUNTED Unit values 1.14 60.00 31.50 0.00 0.00 91.50 \$420 \$221 \$0 \$641 Totals 7.98 \$0 1X4 2-32 WATT FLUORESCENT LAMPS, PENDANT 0010400000 MOUNTED 66.00 FIXTURE Unit values 39.00 31.50 0.00 0.00 1.14 70.50 Totals 75.24 \$2,574 \$2,079 \$0 \$0 \$4,653 0010600000 1X8 2-59 WATT FLUORESCENT LAMPS, PENDANT 6.00 FIXTURE MOUNTED Unit values 1.75 131.00 48.12 0.00 0.00 179.12 \$786 \$289 \$0 \$0 \$1,075 Totals 10.50 400 WATT METAL HALIDE FIXTURE 0011000000 48.00 FIXTURE 207.00 55.00 0.00 0.00 Unit values 2.00 262.00 Totals 96.00 \$9,936 \$2,640 \$0 \$0 \$12,576 0011100000 13 WATT COMPACT FLUORESCENT FIXTURE GLOBE ASSEMBLY 2.00 FIXTURE

3.44

\$7

0.00

\$0

28.94

\$58

0.00

\$0

| Line # | Descripti | on | | | | |
|---|---|--------------|---------|-----------|-----|---|
| | Manhours | Matl | Labor | Equipment | Sub | Total |
| 000 | 278 | \$13,767 | \$7,631 | \$0 | \$0 | \$21,398 |
| ESTIMATE TOTAL | 278 | \$13,767 | \$7,631 | \$0 | \$0 | \$21,398 |
| SALES TAX MATL MARKUP LABOR MARKUP EQUIPT MARKUP SUB MARKUP | 5.00% 0.00% 0.00% 0.00% 0.00% | \$688 \$0 | \$0 | \$0 | \$0 | |
| TOTAL BEFORE C CONTINGENCY BOND PROFIT | ONTINGENC 5.00% 5.00% 10.00% | \$14,455 | \$7,631 | \$0 | \$0 | \$22,086 \$1,104 \$1,104 \$2,209 |
| JOB TOTAL | | | | | | \$26,504 |

Estimate: LIGHTING UPGRADE Date: FEBRUARY 2, 1995
Description: LIGHTING PRODUCT UPGRADE
Project: HANGAR LIGHTING Bid Date: FEBRUARY 2, 1995
Location: BLDG 4137 Job #: 94013.04

City indx:Raleigh, NC Sq. footage:

| | -======== S | UMMARY | | | | |
|---|--|--------------|---------|-----------|-----|---|
| | Manhours | Matl | Labor | Equipment | Sub | Total |
| ======================================= | ======= | | | | | |
| U00 | 278 | \$13,767 | \$7,631 | \$0 | \$0 | \$21,398 |
| TOTAL | 278 | \$13,767 | \$7,631 | \$0 | \$0 | \$21,398 |
| SALES TAX MATL MARKUP LABOR MARKUP | 5.00% 0.00% 0.00% | \$688 \$0 | \$0 | | | |
| EQUIPT MARKUP SUB MARKUP | 0.00% 0.00% | | • | \$0 | \$0 | |
| TOTAL BEFORE C CONTINGENCY BOND PROFIT | CONTINGENC 5.00% 5.00% 10.00% | \$14,455 | \$7,631 | \$0 | \$0 | \$22,086 \$1,104 \$1,104 \$2,209 |
| JOB TOTAL | | | | | | \$26,504 |

Estimate: BLDG 4137 Date: FEBRUARY 2, 1995
Description: CONVENTIONAL SKYLIGHT & CONTROLS
Project: HANGAR STUDY Bid Date: FEBRUARY 2, 1995
Location: BLDG 4137 Job #: 94013.04
Sq. footage: City indx:Raleigh, NC

Line #

Description

| | Manhours | Matl | Labor E | quipment | Sub | Total |
|---|------------|------------------|-------------|-----------|--------|--------------|
| ======================================= | | | | | | |
| 0060000001 | | | GHT WITH 4" | INSULATED | | |
| Unit values | (DOUBLE PA | ANED) 19.56 | 2.41 | 0.09 | 300.00 | SQ. FT 22.06 |
| Totals | 0.00 | \$5,868 | \$723 | \$27 | \$0 | \$6,618 |
| | _ | | | | | |
| U00 | 0 | \$5 , 868 | \$723 | \$27 | \$0 | \$6,618 |

| Line # | Description | on | | | | |
|---|---------------|-----------------|----------------|-------------|-----------------------|------------------------|
| | Manhours | Matl | Labor | Equipment | Sub | Total |
| ======================================= | ======== | ====== | | | | |
| 1611350023 | LOW VOLTA | GE WIRE #1 | 18-4C | | 5.00 | CIE |
| Unit values Totals | 1.23 6.15 | 15.40 \$77 | 34.00 \$170 | 0.00 \$0 | 0.00 | 49.40 \$247 |
| 1611750101 | LIGHTING (| CONTACTOR | | | 2.00 | 17 h |
| Unit values Totals | 2.00 4.00 | 137.00 \$274 | 55.00 \$110 | 0.00 \$0 | 0.00 \$0 | 192.00 \$384 |
| 1611850101 | PHOTO SWIT | rch 50-500 | FC ADJU | STABLE | | |
| Unit values Totals | 1.00 | 290.00 \$580 | 27.50 \$55 | 0.00 \$0 | 2.00 0.00 \$0 | EA. 317.50 \$635 |
| 1611870101 | LOW VOLTA | GE TRANS 1 | 15V-24V | | | |
| Unit values Totals | 0.67 0.67 | 64.00 \$64 | 18.35 \$18 | 0.00 \$0 | 1.00 0.00 \$0 | 82.35 \$82 |
| 1611870102 | SWITCHING | RELAYS | | | | |
| Unit values Totals | 0.50 2.00 | 11.30 \$45 | 13.75 \$55 | 0.00 | 4.00 0.00 \$0 | EA. 25.05 \$100 |
| 1611950101 | 1/2" EMT | | | | | |
| Unit values Totals | 0.05 17.00 | 0.38 \$129 | 1.29 \$439 | 0.00 \$0 | 340.00 0.00 \$0 | LF 1.67 \$568 |
| U16 ELECTRICAL | 32 | \$1,169 | \$847 | \$0 | \$0 | \$2,016 |

| Line # | Description | on | | | | |
|--|---------------------------------------|--------------|---------|-----------|-----|------------------------------------|
| | Manhours | Matl | Labor | Equipment | Sub | Total |
| | | | | | | |
| ESTIMATE TOTAL | 32 | \$7,037 | \$1,570 | \$27 | \$0 | \$8,634 |
| SALES TAX MATL MARKUP LABOR MARKUP | 5.00% 0.00% 0.00% | \$352 \$0 | \$0 | | | |
| EQUIPT MARKUP SUB MARKUP | 0.00% | | ** | \$0 | \$0 | |
| TOTAL BEFORE CONTINGENCY BOND PROFIT | ONTINGENC 5.00% 5.00% 10.00% | \$7,389 | \$1,570 | \$27 | \$0 | \$8,986 \$449 \$449 \$899 |
| JOB TOTAL | | | | | | \$10,783 |

________ Estimate: BLDG 4137 Date: FEBRUARY 2, 1995
Description: CONVENTIONAL SKYLIGHT & CONTROLS
Project: HANGAR STUDY Bid Date: FEBRUARY 2, 1995
Location: BLDG 4137 Job #: 94013.04
Sq. footage: City indx:Raleigh, NC

SUMMARY

| | Manhours | Matl | Labor | Equipment | Sub | Total |
|--|--------------------------------------|--------------------|----------------|-------------|------------|------------------------------------|
| | | | | | | |
| U00 U16 ELECTRICAL | 0 32 | \$5,868 \$1,169 | \$723 \$847 | \$27 \$0 | \$0 \$0 | \$6,618 \$2,016 |
| TOTAL | 32 | \$7,037 | \$1,570 | \$27 | \$0 | \$8,634 |
| SALES TAX MATL MARKUP LABOR MARKUP | 5.00% 0.00% 0.00% | \$352 \$0 | \$0 | | | |
| EQUIPT MARKUP SUB MARKUP | 0.00% | | • | \$0 | \$0 | |
| TOTAL BEFORE CONTINGENCY BOND PROFIT | NTINGENC 5.00% 5.00% 10.00% | \$7,389 | \$1,570 | \$27 | \$0 | \$8,986 \$449 \$449 \$899 |
| JOB TOTAL | | | | | | \$10,783 |

LIFE CYCLE COST ANALYSIS SUMMARY
ENERGY CONSERVATION INVESTMENT PROGRAM (ECIP)

LCCID FY95 (92) INSTALLATION & LOCATION: FORT BRAGG REGION NOS. 4 CENSUS: 3 PROJECT NO. & TITLE: 4242 SKY LIGHTS & LIGHTING PRODUCTS @ HANGARS FISCAL YEAR 95 DISCRETE PORTION NAME: LIGHTING ANALYSIS DATE: 02-03-95 ECONOMIC LIFE 10 YEARS PREPARED BY: JAH 1. INVESTMENT A. CONSTRUCTION COST \$ 19722. 986. B. SIOH C. DESIGN COST 986. D. TOTAL COST (1A+1B+1C) \$ 21694. E. SALVAGE VALUE OF EXISTING EQUIPMENT \$ 0. F. PUBLIC UTILITY COMPANY REBATE G. TOTAL INVESTMENT (1D - 1E - 1F) 21694. 2. ENERGY SAVINGS (+) / COST (-) DATE OF NISTIR 85-3273-X USED FOR DISCOUNT FACTORS OCT 1993 UNIT COST SAVINGS ANNUAL \$ DISCOUNT \$/ MWH(1) MWH/YR(2) SAVINGS(3) FACTOR(4) DISCOUNTED FUEL SAVINGS (5) 42. 0. 0. 0. 0. \$ 1476. \$ 0. \$ 0. \$ 0. \$ 0. \$ 2283. \$ 3759. 1476. A. ELECT \$ 34.95 8.77 12946. B. DIST \$.00 0. 9.26 C. RESID \$.00 10.08 0. D. NAT G \$.00 10.39 \$ 0. .00 E. COAL \$ 9.39 0. F. LPG \$.00 8.78 M. DEMAND SAVINGS 19383. 8.49 N. TOTAL 42. 32329. 3. NON ENERGY SAVINGS(+) / COST(-) A. ANNUAL RECURRING (+/-) \$ 1581. (1) DISCOUNT FACTOR (TABLE A) 8.49 (2) DISCOUNTED SAVING/COST (3A X 3A1) 13423. B. NON RECURRING SAVINGS(+) / COSTS(-) SAVINGS(+) YR DISCNT DISCOUNTED
COST(-) OC FACTR SAVINGS(+)
(1) (2) (3) COST(-)(4) ITEM SAVINGS(+)/ d. TOTAL \$ 0. C. TOTAL NON ENERGY DISCOUNTED SAVINGS(+)/COST(-)(3A2+3Bd4)\$ 13423. 4. FIRST YEAR DOLLAR SAVINGS 2N3+3A+(3Bd1/(YRS ECONOMIC LIFE))\$ 5340. 5. SIMPLE PAYBACK PERIOD (1G/4) 4.06 YEARS 6. TOTAL NET DISCOUNTED SAVINGS (2N5+3C) \$ 45751. 7. SAVINGS TO INVESTMENT RATIO (SIR) = (6 / 1G) =(IF < 1 PROJECT DOES NOT OUALIFY) 8. ADJUSTED INTERNAL RATE OF RETURN (AIRR): 11.09 %

| FORT BRAGG LIM | FORT BRAGG LIMITED ENERGY STUDY |
|---|---|
| OF HANGAR FACILITIES A ECO 1: INTERIOR 16 DEC | OF HANGAR FACILITIES AT SIMMONS ARMY AIRFIELD ECO 1: INTERIOR / EXTERIOR LIGHTING 16 DECEMBER 1994 |
| INTERIOR LIGHTING: FLUOI | INTERIOR LIGHTING: FLUORESCENT FIXTURE REPLACEMENT |
| BUILDING #: 4242 - HANGAR | |
| AREA USE: HOURS/DAY DAYS/WEEK 5 | DEMAND CHARGE \$9.05489 PER KW |
| EXISTING FIXTURE DATA | REPLACEMENT FIXTURE DATA |
| 2 FOOT 2 LAMP U @ 92 W/FIXT = 0 WATTS | 2 FOOT 0 2 LAMP U @ 58 W/FIXT = 0 WATTS |
| 92 W/FIXT | 58 WEIXT - |
| 3 LAMP @ 137 W/FIXT = 411 WATTS 24 4 LAMP @ 184 W/FIXT = 4,416 WATTS | 24 3 LAMP @ 87 W/FIXT = 2,088 WATTS 0 4 LAMP @ 118 W/FIXT = 0 WATTS |
| 8 FOOT 2 LAMP @ 144 W/FIXT = 0 WATTS | 8 FOOT 0 2 LAMP @ 125 W/FIXT = 0 WATTS |
| BASELINE ENERGY CONSUMPTION 12,550 KWH/YR | ECO ENERGY CONSUMPTION 5,881 KWH/YR |
| BASELINE DEMAND 4.83 KW | ECO DEMAND 2.28 KW |
| NET ENERGY SAVINGS 6,669 KWH/YR | \$282 |
| | NET DOLLAR SAVINGS \$518 /YR |
| MAINTENA | MAINTENANCE SAVINGS |
| 27 LAMPS @ \$5.00 / 20,000 HOURS • | 2,600 HR/YR = \$18 / YEAR (4' FLUORESCENT LAMPS) |
| NET MAINTENANCE SAVINGS | \$18 NEAR |

28,080 KWH/YR 0 WATTS 0 WATTS 0 WATTS 10,800 WATTS 0 WATTS 10.80 KW \$799 MR \$1,453 MR (INCANDSCENT) (METAL HALIDE) OF HANGAR FACILITIES AT SIMMONS ARMY AIRFIELD PER KWH PER KW 450 WATTS = WATTS = WATTS = WATTS = WATTS = **NET DEMAND SAVINGS NET DOLLAR SAVINGS** FORT BRAGG LIMITED ENERGY STUDY \$0.03495 REPLACEMENT FIXTURE DATA \$1,622 / YEAR \$147 / YEAR ECO ENERGY CONSUMPTION ELECTRIC COSTS; ENERGY CHARGE DEMAND CHARGE INTERIOR LIGHTING: LIGHTING REPLACEMENT **ECO 1: INTERIOR / EXTERIOR LIGHTING** \$1,475 MEAR ECO DEMAND MAINTENANCE SAVINGS 20000 2,600 HRYYR = 2,600 HRYYR = **16 DECEMBER 1994** 46,800 KWH/YR 18,720 KWH/YR Š **NET MAINTENANCE SAVINGS** 18.00 \$26.00 / 1,000 HOURS * \$47.00 / 20,000 HOURS * 0 WATTS 0 WATTS 18,000 WATTS 0 WATTS 0 WATTS 10 5 1 (1-YES, 0-NO) 750 WATTS = WATTS = WATTS = WATTS = WATTS = BUILDING #: 4242 - HANGAR BASELINE ENERGY CONSUMPTION **NET ENERGY SAVINGS** 24 LAMPS @____24 LAMPS @___ EXISTING FIXTURE DATA INCAND @ QUARTZ @ QUARTZ @ AREA USE:_ BASELINE DEMAND DAYSWEEK PEAK USE HOURS/DAY 24

| ### BUILDING #: 4242 - HANGAR ################################### |
|--|
|--|

Unit values

0011000000

Unit values

0011400000

Unit values

Totals

Totals

Totals

UOO

3.00 FIXTURE

24.00 FIXTURE

24.00 FIXTURE

\$0

0.00

0.00

\$0

\$0

\$0

0.00 . 116.50

\$350

262.00

\$6,288

120.50

\$2,892

\$10,550

_________ LIGHTING UPGRADE Date: FEBRUARY 2, 1995 Estimate: LIGHTING PRODUCT UPGRADE Description: HANGAR LIGHTING Bid Date: FEBRUARY 2, 1995 Project: Job #: 94013.04 BLDG 4242 Location: City indx:Raleigh, NC Sq. footage: Description Line # Matl Labor Equipment Manhours ______ DEMOLITION, 2X4 FLUORESCENT FIXTURES 0002000000 27.00 FIXTURE 0.49 Unit values 0.00 13.35 0.00 0.00 13.35 \$0 \$0 \$0 Totals 13.23 \$360 \$360 0002030000 DEMOLITION, HIGH BAY FIXTURES 24.00 FIXTURE Unit values 0.00 27.50 0.00 0.00 27.50 1.00 Totals 24.00 \$0 \$660 \$0 \$0 \$660

2X4 2-32 WATT FLUORESCENT LAMPS, RECESSED

2X4 3-32 WATT FLUORESCENT LAMPS, SURFACE

41.50

55.00

41.50

\$3,461

\$996

\$1,320

\$125

0.00

0.00

0.00

\$0

\$0

\$0

\$0

MOUNTED WITH REFLECTORS

MOUNTED WITH REFLECTOR

75.00

207.00

\$4,968

79.00

\$1,896

\$7,089

\$225

400 WATT METAL HALIDE FIXTURE

1.51

4.53

2.00

48.00

1.51

126

36.24

JOB TOTAL

\$13,085

______ Description Line # Equipment Sub Labor Total Matl Manhours \$7,089 \$3,461 \$0 \$0 \$10,550 126 ESTIMATE TOTAL 5.00% \$354 SALES TAX MATL MARKUP 0.00% \$0 \$0 0.00% LABOR MARKUP EQUIPT MARKUP 0.00% \$0 \$0 SUB MARKUP 0.00% TOTAL BEFORE CONTINGENC \$7,443 \$3,461 \$0 \$0 \$10,904 \$545 5.00% CONTINGENCY \$545 BOND 5.00% 10,00% PROFIT \$1,090

Estimate: LIGHTING UPGRADE Date: FEBRUARY 2, 1995

Description: LIGHTING PRODUCT UPGRADE
Project: HANGAR LIGHTING Bid Date: FEBRUARY 2, 1995
Location: BLDG 4242 Job #: 94013.04

Sg. footage:

City indx:Raleigh, NC

| sq. Iootage. | | | | | · | | | |
|--------------------------------------|--|--------------|---------|-----------|-----|---------------------------------------|--|--|
| SUMMARY | | | | | | | | |
| | Manhours | Matl | Labor | Equipment | Sub | Total | | |
| | | | | | | | | |
| 000 | 126 | \$7,089 | \$3,461 | \$0 | \$0 | \$10,550 | | |
| TOTAL | 126 | \$7,089 | \$3,461 | \$0 | \$0 | \$10,550 | | |
| SALES TAX MATL MARKUP | 5.00% 0.00% | \$354 \$0 | | | | | | |
| LABOR MARKUP | 0.00% | ŞU | \$0 | • • | | | | |
| EQUIPT MARKUP SUB MARKUP | 0.00% 0.00% | | | \$0 | \$0 | | | |
| TOTAL BEFORE CONTINGENCY BOND PROFIT | CONTINGENC 5.00% 5.00% 10.00% | \$7,443 | \$3,461 | \$0 | \$0 | \$10,904 \$545 \$545 \$1,090 | | |
| JOB TOTAL | | | | | | \$13,085 | | |

UOO

Estimate: BLDG 4242 Date: FEBRUARY 2, 1995
Description: CONVENTIONAL SKYLIGHT & CONTROLS
Project: HANGAR STUDY Bid Date: FEBRUARY 2, 1995

Location: BLDG 4242 Job #: 94013.04

\$2,934

0

Sq. footage: City indx:Raleigh, NC

Line # Description Manhours Matl Labor Equipment Sub Total _______ 0060000001 CONVENTIONAL SKYLIGHT WITH 4" INSULATED CURBS (DOUBLE PANED) 150.00 SQ. FT 19.56 \$2,934 Unit values 0.00 2.41 0.09 0.00 22.05 Totals 0.00 \$362 \$14 \$0 \$3,310

\$362

\$14

\$0

\$3,310

| Line # | Description | on | | | | |
|---|---------------|-----------------|-------------------|-------------|-----------------------|-----------------|
| | Manhours | Matl | Labor | Equipment | Sub | Total |
| ======================================= | | | | | | |
| 1611350023 | LOW VOLTAG | GE WIRE #: | 18-4C | | | |
| Unit values Totals | 1.23 6.15 | 15.40 \$77 | 34.00 \$170 | 0.00 \$0 | 5.00 0.00 \$0 | 49.40 \$247 |
| 1611750101 | LIGHTING (| CONTACTOR | | | 2.00 | 77 |
| Unit values Totals | 2.00 4.00 | 137.00 \$274 | 55.00 \$110 | 0.00 \$0 | 2.00 0.00 \$0 | 192.00 \$384 |
| 1611850101 | PHOTO SWIT | rch 50-500 | FC ADJU | STABLE | | |
| Unit values Totals | 1.00 | 290.00 \$580 | 27.50 \$55 | 0.00 \$0 | 2.00 0.00 \$0 | 317.50 \$635 |
| 1611870101 | LOW VOLTAG | SE TRANS 1 | 115V - 24V | | | |
| Unit values Totals | 0.67 0.67 | 64.00 \$64 | 18.35 \$18 | 0.00 \$0 | 1.00 0.00 \$0 | 82.35 \$82 |
| 1611870102 | SWITCHING | RELAYS | | | 4 00 | |
| Unit values Totals | 0.50 2.00 | 11.30 \$45 | 13.75 \$55 | 0.00 \$0 | 4.00 0.00 \$0 | 25.05 \$100 |
| 1611950101 | 1/2" EMT | | | | | |
| Unit values Totals | 0.05 17.00 | 0.38 \$129 | 1.29 \$439 | 0.00 \$0 | 340.00 0.00 \$0 | 1.67 \$568 |
| U16 ELECTRICAL | 32 | \$1,169 | \$847 | \$0 | \$0 | \$2,016 |

| Line # | Description | on | | | | |
|---|---------------------------------------|--------------|---------|-----------|-----|------------------------------------|
| | Manhours | Matl | Labor | Equipment | Sub | Total |
| | | | | | | |
| ESTIMATE TOTAL | 32 | \$4,103 | \$1,209 | \$14 | \$0 | \$5,326 |
| SALES TAX MATL MARKUP | 5.00% | \$205 \$0 | ¢ o | | | |
| LABOR MARKUP EQUIPT MARKUP SUB MARKUP | 0.00% 0.00% 0.00% | | \$0 | \$0 | \$0 | |
| TOTAL BEFORE C CONTINGENCY BOND PROFIT | ONTINGENC 5.00% 5.00% 10.00% | \$4,308 | \$1,209 | \$14 | \$0 | \$5,531 \$277 \$277 \$553 |
| JOB TOTAL | | | | | | \$6,637 |

Estimate: BLDG 4242 Date: FEBRUARY 2, 1995
Description: CONVENTIONAL SKYLIGHT & CONTROLS
Project: HANGAR STUDY Bid Date: FEBRUARY 2, 1995
Location: BLDG 4242 Job #: 94013.04
Sq. footage: City indx:Raleigh, NC

SUMMARY

| | 50 | JMMAKI | | | | |
|---|---------------------------------------|--------------------|----------------|-------------|------------|------------------------------------|
| | Manhours | Matl | Labor | Equipment | Sub | Total |
| | | | | | | |
| U00 U16 ELECTRICAL | 0 32 | \$2,934 \$1,169 | \$362 \$847 | \$14 \$0 | \$0 \$0 | \$3,310 \$2,016 |
| TOTAL | 32 | \$4,103 | \$1,209 | \$14 | \$0 | \$5,326 |
| SALES TAX MATL MARKUP LABOR MARKUP | 5.00% 0.00% 0.00% | \$205 \$0 | \$0 | | | |
| EQUIPT MARKUP SUB MARKUP | 0.00% 0.00% | | | \$0 | \$0 | |
| TOTAL BEFORE C CONTINGENCY BOND PROFIT | ONTINGENC 5.00% 5.00% 10.00% | \$4,308 | \$1,209 | \$14 | \$0 | \$5,531 \$277 \$277 \$553 |
| JOB TOTAL | | | | | | \$6,637 |

ENERGY CONSERVATION INVESTMENT PROGRAM (ECIP)

LLATION & LOCATION: FORT BRAGE PROJECTION LCCID FY95 (92) INSTALLATION & LOCATION: FORT BRAGG REGION NOS. 4 CENSUS: 3 PROJECT NO. & TITLE: 7937 SKY LIGHTS & LIGHTING PRODUCTS @ HANGARS FISCAL YEAR 95 DISCRETE PORTION NAME: LIGHTING ANALYSIS DATE: 02-03-95 ECONOMIC LIFE 10 YEARS PREPARED BY: JAH 1. INVESTMENT A. CONSTRUCTION COST 56709. 2835. \$ B. SIOH C. DESIGN COST \$ 2835. D. TOTAL COST (1A+1B+1C) \$ 62380. E. SALVAGE VALUE OF EXISTING EQUIPMENT \$ 0. F. PUBLIC UTILITY COMPANY REBATE G. TOTAL INVESTMENT (1D - 1E - 1F) 62380. 2. ENERGY SAVINGS (+) / COST (-) DATE OF NISTIR 85-3273-X USED FOR DISCOUNT FACTORS OCT 1993 UNIT COST SAVINGS ANNUAL \$ DISCOUNT DISCOUNTED FUEL \$/ MWH(1) MWH/YR(2) SAVINGS(3) FACTOR(4) SAVINGS(5) 156. 0. 0. 0. \$ 5456. \$ 0. \$ 0. \$ 0. \$ 0. \$ 5103. \$ 10559. A. ELECT \$ 34.95 5456. 8.77 47850. B. DIST \$.00 9.26 0. 0. C. RESID \$.00 10.08 0. .00 D. NAT G S 10.39 0. E. COAL \$ 9.39 0. F. LPG \$.00 8.78 0. M. DEMAND SAVINGS 8.49 43324. 156. N. TOTAL 91174. 3. NON ENERGY SAVINGS(+) / COST(-) A. ANNUAL RECURRING (+/-) \$ 1047. (1) DISCOUNT FACTOR (TABLE A) 8.49 (2) DISCOUNTED SAVING/COST (3A X 3A1) 8889. B. NON RECURRING SAVINGS(+) / COSTS(-) SAVINGS(+) YR DISCNT
COST(-) OC FACTR
(1) (2) (3) DISCOUNTED ITEM SAVINGS(+)/ COST(-)(4) d. TOTAL 0. C. TOTAL NON ENERGY DISCOUNTED SAVINGS(+)/COST(-)(3A2+3Bd4)\$ 8889. 4. FIRST YEAR DOLLAR SAVINGS 2N3+3A+(3Bd1/(YRS ECONOMIC LIFE))\$ 11606. 5. SIMPLE PAYBACK PERIOD (1G/4) **5.37 YEARS** 6. TOTAL NET DISCOUNTED SAVINGS (2N5+3C) \$ 100063. 7. SAVINGS TO INVESTMENT RATIO (SIR)=(6 / 1G)= 1.60 (IF < 1 PROJECT DOES NOT QUALIFY) 8. ADJUSTED INTERNAL RATE OF RETURN (AIRR): 8.09 %

LIFE CYCLE COST ANALYSIS SUMMARY

82,703 KWHYR 0 WATTS 9,570 WATTS 0 WATTS 0 WATTS 0 WATTS 0 WATTS 9.57 KW \$2,856 MR \$932 NR OF HANGAR FACILITIES AT SIMMONS ARMY AIRFIELD PER KWH PER KW 29 W/FIXT = 58 W/FIXT = 87 W/FIXT = 118 W/FIXT = 58 W/FIXT **125 W/FIXT NET DEMAND SAVINGS NET DOLLAR SAVINGS** FORT BRAGG LIMITED ENERGY STUDY \$0.03495 REPLACEMENT FIXTURE DATA ECO ENERGY CONSUMPTION INTERIOR LIGHTING: FLUORESCENT FIXTURE REPLACEMENT 0 2 LAMP U @ 0 2 LAMP @ 165 2 LAMP @ 0 3 LAMP @ 0 4 LAMP @ 0 2 LAMP @ ELECTRIC COSTS; ENERGY CHARGE DEMAND CHARGE **ECO 1: INTERIOR / EXTERIOR LIGHTING ECO DEMAND** 2 FOOT 4 F00T **16 DECEMBER 1994** 117,739 KWH/YR 55,037 KWH/YR Š 17.97 0 WATTS 9,476 WATTS 8,494 WATTS 0 WATTS 0 WATTS 0 WATTS 45 W/FIXT = 92 W/FIXT = 137 W/FIXT = 184 W/FIXT = 92 W/FIXT = 144 W/FIXT = BUILDING #: 7937 - HANGAR BASELINE ENERGY CONSUMPTION **NET ENERGY SAVINGS** 7.18 EXISTING FIXTURE DATA 2 LAMP U@ 103 2 LAMP @ 62 3 LAMP @ 4 LAMP @ AREA USE:_ HOURS/DAY BASELINE DEMAND 2 LAMP @ DAYSWEEK 4 FOOT 2 FOOT 8 F00T

(4' FLUORESCENT LAMPS)

\$102 / YEAR

6,570 HR/YR =

MAINTENANCE SAVINGS

\$102 NEAR

NET MAINTENANCE SAVINGS

\$5.00 / 20,000 HOURS •

62 LAMPS @

| KFIELD | PER KWH PER KW | NEPLACEMENT SIGNS OF EXIT SIGNS: 14 WATTAGE: 3 | 368 KWH/YR 0.04 KW | \$42 IYR \$158 IYR | (INCANDESCENT) (COMPACT FLUORESCENT) |
|---|---|---|--|--|---|
| DENERGY STUDY IMMONS ARMY AIR | \$0.03495 \$9.25 | 18 18 | ECO ENERGY CONSUMPTION ECO DEMAND | NET DEMAND SAVINGS NET DOLLAR SAVINGS | \$429 / YEAR \$0 / YEAR 4R |
| FORT BRAGG LIMITED ENERGY STUDY OF HANGAR FACILITIES AT SIMMONS ARMY AIRFIELD ECO 1: INTERIOR / EXTERIOR LIGHTING 16 DECEMBER 1994 | INTERIOR LIGHTING: EXIT SIGN REPLACEMENT ELECTRIC COSTS; ENERGY CHARGE DEMAND CHARGE | FLUORESCENT EXIT SIGNS 4 A F EXIT SIGNS: WATTAGE: | 3,679 KWH/YR 0.42 KW | 3,311 KWH/YR | MAINTENAN MAINTENAN MAINTENANCE SAVINGS |
| FC OF HANG, | BUILDING #: 7937 - HANGAR | INCANDESCENT EXIT SIGNS # OF EXIT SIGNS: WATTAGE: | BASELINE ENERGY CONSUMPTION BASELINE DEMAND | NET ENERGY SAVINGS | 14 LAMPS @ \$3. LAMPS @ |

| Y IRFIELD | | DED WANT | PERKW | o.l | 228,110 KWH/YR | 37.2 KW | GS \$4,129 IYR 3S \$7,546 IYR | | (WITHOUT SKYLIGHTS) (WITH SKYLIGHTS) | |
|---|------------------------------------|----------------------------------|---|-------------------------------------|--|-----------------|--|---------------------|---|-------------------------|
| FOR I BRAGG LIMITED ENERGY STUDY IGAR FACILITIES AT SIMMONS ARMY AI ECO 1: INTERIOR / EXTERIOR LIGHTING 02 FEBRUARY 1895 | CONVENTIONAL SKY LIGHTS IN HANGARS | ELECTRIC COSTS: ENERGY CHARGE | DEMAND CHARGE \$9.25 | REVISED USAGE: HOURS/YEAR 6,132 | ECO ENERGY CONSUMPTION | ECO DEMAND | NET DEMAND SAVINGS NET DOLLAR SAVINGS | MAINTENANCE SAVINGS | 8,760 HR/YR = \$1,720 / YEAR 6,132 HR/YR = \$1,204 / YEAR | \$516 N'EAR |
| FOR I BRAGG LIMITED ENERGY STUDY OF HANGAR FACILITIES AT SIMMONS ARMY AIRFIELD ECO 1: INTERIOR / EXTERIOR LIGHTING 02 FEBRUARY 1995 | CONVENTIONAL SK | NG #: 7937 - HANGAR | WATTAGE_CONTROLLED:37,200_W PEAK_USE:1 (1-YES, 0-NO) | CURRENT USAGE : HOURS/YEAR 8,760 | BASELINE ENERGY CONSUMPTION 325,872 KWH/YR | MAND 37.2 KW | NET ENERGY SAVINGS 97,762 KWH/YR | MAINTENAN | 124 LAMPS @ \$38.00 / 24,000 HOURS • 124 LAMPS @ \$38.00 / 24,000 HOURS • | NET MAINTENANCE SAVINGS |
| | | BUILDING #: | WATTAGE | CUR | BASELINE EN | BASELINE DEMAND | NET | | | |

LIGHTING UPGRADE Date: FEBRUARY 2, 1995 Estimate: LIGHTING PRODUCT UPGRADE Description: Bid Date: FEBRUARY 2, 1995 HANGAR LIGHTING Project: BLDG 7937 Job #: 94013.04 Location: City indx: Raleigh, NC Sq. footage: Description Line # Matl Manhours Labor Equipment Sub Total ______ DEMOLITION, 2X4 FLUORESCENT FIXTURES 0002000000 110.00 FIXTURE Unit values 0.49 0.00 0.00 13.35 0.00 13.35 Totals 53.90 \$0 \$1,469 \$0 \$0 \$1,469 0002010000 DEMOLITION, INCANDESCENT FIXTURES/EXIT SIGNS 14.00 FIXTURE Unit values 0.26 0.00 7.10 0.00 0.00 7.10 Totals 3.64 \$99 \$0 \$0 \$0 \$99 0002020000 DEMOLITION, 1X4 FLUORESCENT FIXTURES 55.00 FIXTURE Unit values 0.49 0.00 13.35 0.00 0.00 13.35 Totals 26.95 \$0 \$734 \$0 \$0 \$734 0010000000 1X4 2-32 WATT FLUORESCENT LAMPS, SURFACE MOUNTED 45.00 FIXTURE Unit values 1.14 60.00 31.50 0.00 0.00 91.50 Totals 51.30 \$2,700 \$1,418 \$0 \$0 \$4,118 0010100000 2X4 2-32 WATT FLUORESCENT LAMPS, RECESSED MOUNTED 48.00 FIXTURE Unit values 1.51 59.00 0.00 41.50 0.00 100.50 Totals 72.48 \$2,832 \$1,992 \$0 \$0 \$4,824 0010200000 1X4 2-32 WATT FLUORESCENT LAMPS, RECESSED MOUNTED 4.00 FIXTURE Unit values 1.14 51.00 31.50 0.00 0.00 82.50 Totals 4.56 \$204 \$126 \$0 \$0 \$330 1X4 2-32 WATT FLUORESCENT LAMPS, WALL MOUNTED 0010300000 6.00 FIXTURE Unit values 1.14 60.00 31.50 0.00 0.00 91.50 Totals 6.84 \$360 \$189 \$0 \$0 \$549 2X4 2-32 WATT FLUORESCENT LAMPS, RECESSED 0010500000 MOUNTED WITH REFLECTORS 62.00 FIXTURE Unit values 75.00 1.51 41.50 0.00 0.00 116.50 Totals 93.62 \$4,650 \$2,573 \$0 \$0 \$7,223 0010700000 LED EXIT SIGN, RETROFIT KIT 14.00 FIXTURE

| 03-Feb-95 | | MeansD | | Page 2 | | |
|-------------|-------|--------|-------|--------|------|-------|
| Unit values | 1.00 | 35.00 | 27.50 | 0.00 | 0.00 | 62.50 |
| Totals | 14.00 | \$490 | \$385 | \$0 | \$0 | \$875 |

| Line # | Descripti | on | | | | |
|---|---|--------------|---------|-----------|-----|---|
| | Manhours | Matl | Labor | Equipment | Sub | Total |
| U00 | 328 | \$11,236 | \$8,985 | \$0 | \$0 | \$20,221 |
| ESTIMATE TOTAL | 328 | \$11,236 | \$8,985 | \$0 | \$0 | \$20,221 |
| SALES TAX MATL MARKUP LABOR MARKUP EQUIPT MARKUP SUB MARKUP | 5.00% 0.00% 0.00% 0.00% 0.00% | \$562 \$0 | \$0 | \$0 | \$0 | |
| TOTAL BEFORE C CONTINGENCY BOND PROFIT | ONTINGENC 5.00% 5.00% 10.00% | \$11,798 | \$8,985 | \$0 | \$0 | \$20,783 \$1,039 \$1,039 \$2,078 |
| JOB TOTAL | | | | | | \$24,939 |

\$24,939

Estimate: LIGHTING UPGRADE Date: FEBRUARY 2, 1995 Description: LIGHTING PRODUCT UPGRADE
Project: HANGAR LIGHTING Bid Date
Location: BLDG 7937 Job #:

JOB TOTAL

Bid Date: FEBRUARY 2, 1995 Job #: 94013.04

Sq. footage:

City indx:Raleigh, NC

| | Manhours | Matl | Labor | Equipment | Sub | Total |
|---|--|--------------|---------|-----------|-----|---|
| | :#==#==# | | | | | |
| 000 | 328 | \$11,236 | \$8,985 | \$0 | \$0 | \$20,221 |
| TOTAL | 328 | \$11,236 | \$8,985 | \$0 | \$0 | \$20,221 |
| SALES TAX MATL MARKUP LABOR MARKUP | 5.00% 0.00% 0.00% | \$562 \$0 | \$0 | | | |
| EQUIPT MARKUP SUB MARKUP | 0.00% | | 1 | \$0 | \$0 | |
| TOTAL BEFORE C CONTINGENCY BOND PROFIT | CONTINGENC 5.00% 5.00% 10.00% | \$11,798 | \$8,985 | \$0 | \$0 | \$20,783 \$1,039 \$1,039 \$2,078 |

Estimate: BLDG 7937 Date: FEBRUARY 2, 1995
Description: CONVENTIONAL SKYLIGHT & CONTROLS
Project: HANGAR STUDY Bid Date: FEBRUARY 2, 1995
Location: BLDG 7937 Job #: 94013.04

Sq. footage: City indx:Raleigh, NC

Description Line #

Manhours Matl Labor Equipment Sub Total ___________ 0060000001 CONVENTIONAL SKYLIGHT WITH 4" INSULATED CURBS

(DOUBLE PANED) 960.00 SQ. FT 2.41 Unit values 0.00 19.56 19.56 \$18,778 0.09 0.00 22.06 Totals 0.00 \$2,314 \$86 \$0 \$21,178

UOO \$18,778 0 \$2,314 \$86 \$0 \$21,178

Description Line # Equipment Sub Matl Labor Manhours LOW VOLTAGE WIRE #18-4C 1611350023 14.00 CLF 34.00 0.00 0.00 49.40 1.23 15.40 Unit values 17.22 \$216 \$476 \$0 \$0 \$692 Totals LIGHTING CONTACTOR 1611750101 6.00 EA. 2.00 0.00 192.00 137.00 55.00 0.00 Unit values \$0 \$0 \$1,152 12.00 \$822 \$330 Totals PHOTO SWITCH 50-500 FC ADJUSTABLE 1611850101 4.00 EA. 0.00 0.00 317.50 27.50 1.00 290.00 Unit values \$0 \$1,270 4.00 \$110 \$0 Totals \$1,160 LOW VOLTAGE TRANS 115V-24V 1611870101 1.00 EA. 18.35 0.00 0.00 82.35 64.00 Unit values 0.67 \$18 \$0 \$0 \$82 \$64 Totals 0.67 SWITCHING RELAYS 1611870102 8.00 EA. 0.00 0.00 25.05 11.30 13.75 Unit values 0.50 \$0 \$200 4.00 \$90 \$110 \$0 Totals 1/2" EMT 1611950101 500.00 LF 0.00 1.67 1.29 0.00 Unit values 0.05 0.38 \$0 \$835 \$0 Totals \$645 25.00 \$190 \$0 \$4,231 \$2,542 \$1,689 \$0 63 U16 ELECTRICAL

\$31,770

JOB TOTAL

Description Line # Manhours Matl Labor Equipment Sub Total \$4,003 \$86 \$0 \$25,409 ESTIMATE TOTAL 63 \$21,320 SALES TAX \$1,066 5.00% \$0 MATL MARKUP 0.00% LABOR MARKUP 0.00% \$0 \$0 EQUIPT MARKUP 0.00% \$0 SUB MARKUP 0.00% \$22,386 \$4,003 \$86 \$0 \$26,475 TOTAL BEFORE CONTINGENC \$1,324 CONTINGENCY 5.00% \$1,324 BOND 5.00% \$2,648 10.00% PROFIT

FEBRUARY 2, 1995

Estimate: BLDG 7937 Date: FEBR CONVENTIONAL SKYLIGHT & CONTROLS

HANGAR STUDY Bid Date: FEBRUARY 2, 1995

Project: Location:

JOB TOTAL

BLDG 7937

Job #: 94013.04

Sq. footage:

City indx:Raleigh, NC

SUMMARY Manhours Matl Labor Equipment Sub \$86 \$0 \$21,178 0 \$18,778 \$2,314 UOO \$2,542 \$1,689 \$0 \$0 \$4,231 U16 ELECTRICAL 63 \$25,409 \$0 63 \$21,320 \$4,003 \$86 TOTAL SALES TAX 5.00% \$1,066 MATL MARKUP 0.00% \$0 \$0 LABOR MARKUP 0.00% \$0 EQUIPT MARKUP 0.00% \$0 0.00% SUB MARKUP \$0 \$26,475 \$22,386 \$4,003 \$86 TOTAL BEFORE CONTINGENC \$1,324 CONTINGENCY 5.00% \$1,324 5.00% BOND \$2,648 PROFIT 10.00%

\$31,770

INSTALLATION & LOCATION: FORT BRAGG REGION NOS. 4 CENSUS: 3 PROJECT NO. & TITLE: 8944 SKY LIGHTS & LIGHTING PRODUCTS @ HANGARS FISCAL YEAR 95 DISCRETE PORTION NAME: LIGHTING ANALYSIS DATE: 02-03-95 ECONOMIC LIFE 10 YEARS PREPARED BY: JAH 1. INVESTMENT 46670. A. CONSTRUCTION COST B. SIOH \$ 2334. 2334. C. DESIGN COST D. TOTAL COST (1A+1B+1C) \$ E. SALVAGE VALUE OF EXISTING EQUIPMENT \$ F. PUBLIC UTILITY COMPANY REBATE \$ G. TOTAL INVESTMENT (1D - 1E - 1F) 51337. 2. ENERGY SAVINGS (+) / COST (-) DATE OF NISTIR 85-3273-X USED FOR DISCOUNT FACTORS OCT 1993 UNIT COST SAVINGS ANNUAL \$ DISCOUNT DISCOUNTED \$/ MWH(1) MWH/YR(2) SAVINGS(3) FACTOR(4) SAVINGS(5) FUEL 3879. A. ELECT \$ 34.95 111. 8.77 34017. \$ B. DIST \$.00 0. 9.26 0. 0. C. RESID \$.00 0. 0. 10.08 0. 0. 0. 0. 4023. 0. D. NAT G \$.00 10.39 0. E. COAL \$.00 9.39 0. 8.78 F. LPG \$.00 0. 8.49 M. DEMAND SAVINGS 34155. 111. 7902. 68173. N. TOTAL 3. NON ENERGY SAVINGS(+) / COST(-) 793. A. ANNUAL RECURRING (+/-) (1) DISCOUNT FACTOR (TABLE A) 8.49 (2) DISCOUNTED SAVING/COST (3A X 3A1) 6733. B. NON RECURRING SAVINGS(+) / COSTS(-) SAVINGS(+) YR DISCNT
COST(-) OC FACTR
(1) (2) (3) DISCOUNTED ITEM SAVINGS(+)/ COST(-)(4) \$ 0. d. TOTAL C. TOTAL NON ENERGY DISCOUNTED SAVINGS(+)/COST(-)(3A2+3Bd4)\$ 6733. 4. FIRST YEAR DOLLAR SAVINGS 2N3+3A+(3Bd1/(YRS ECONOMIC LIFE))\$ 5.90 YEARS 5. SIMPLE PAYBACK PERIOD (1G/4) 6. TOTAL NET DISCOUNTED SAVINGS (2N5+3C) \$ 74905. 1.46 7. SAVINGS TO INVESTMENT RATIO (SIR) = (6 / 1G) =(IF < 1 PROJECT DOES NOT OUALIFY) 8. ADJUSTED INTERNAL RATE OF RETURN (AIRR): 7.07 %

LIFE CYCLE COST ANALYSIS SUMMARY STUDY: 8944
ENERGY CONSERVATION INVESTMENT PROGRAM (ECIP) LCCID FY95 (92)

LIFE CYCLE COST ANALYSIS SUMMARY

KWHYR 0 WATTS 5,742 WATTS 0 WATTS 0 WATTS 0 WATTS 0 WATTS \$394 MR \$1,206 MR (4' FLUORESCENT LAMPS) 5.74 KW 37,622 OF HANGAR FACILITIES AT SIMMONS ARMY AIRFIELD PER KWH PER KW 29 W/FIXT = 58 W/FIXT = 87 W/FIXT = 118 W/FIXT = 11 58 W/FIXT 125 W/FIXT **NET DEMAND SAVINGS NET DOLLAR SAVINGS** FORT BRAGG LIMITED ENERGY STUDY \$0.03495 REPLACEMENT FIXTURE DATA \$7 / YEAR ECO ENERGY CONSUMPTION INTERIOR LIGHTING: FLUORESCENT FIXTURE REPLACEMENT 0 2 LAMP U @ 0 2 LAMP @ 99 2 LAMP @ 0 3 LAMP @ 0 4 LAMP @ 0 0 2 LAMP @ ELECTRIC COSTS; ENERGY CHARGE DEMAND CHARGE **ECO 1: INTERIOR / EXTERIOR LIGHTING ECO DEMAND** MAINTENANCE SAVINGS 6,570 HR/YR = 8 FOOT 2 FOOT **4 FOOT** 16 DECEMBER 1994 60,855 KWH/YR 23,233 KWH/YR KX 9.29 \$5.00 / 20,000 HOURS * 0 WATTS 8,740 WATTS 548 WATTS 0 WATTS 0 WATTS 0 WATTS 45 W/FIXT = 92 W/FIXT = 137 W/FIXT = 184 W/FIXT = 92 W/FIXT = 144 W/FIXT = BUILDING #: 8944 - HANGAR BASELINE ENERGY CONSUMPTION **NET ENERGY SAVINGS** 4 LAMPS @ 18 EXISTING FIXTURE DATA 2 LAMP U @ BASELINE DEMAND 1 LAMP @ 95 2 LAMP @ 4 3 LAMP @ 4 LAMP @ AREA USE:_ HOURS/DAY 2 LAMP @ DAYSWEEK **2 FOOT** FOOT F001

\$7 N'EAR

NET MAINTENANCE SAVINGS

| MONS ARM) R LIGHTING REPLACEMENT CIRIC COSTS: RGY CHARGE IAND CHARGE | # OF EXIT SIGNS # OF EXIT SIGNS # OF EXIT SIGNS: 0 # OF EXIT SIGNS: 11 WATTAGE: 30 WATTAGE: 38 | 2,891 KWH/YR ECO ENERGY CONSUMPTION 0.33 KW ECO DEMAND | NET ENERGY SAVINGS 2,602 KWHMR NET DEMAND SAVINGS \$33 MR NET DOLLAR SAVINGS \$124 MR MAINTENANCE SAVINGS | 11 LAMPS @ \$3.50 / 1,000 HOURS • 8,760 HR/YR = \$337 / YEAR (INCANDESCENT) LAMPS @ 10,000 HOURS • HR/YR = \$0 / YEAR (COMPACT FLUORESCENT) NET MAINTENANCE SAVINGS \$337 / YEAR | |
|--|---|--|---|--|--|
|--|---|--|---|--|--|

| FORT BRAGG LIMITED ENERGY STUDY OF HANGAR FACILITIES AT SIMMONS ARMY AIRFIELD ECO 1: INTERIOR / EXTERIOR LIGHTING 02 FEBRUARY 1995 CONVENTIONAL SKY LIGHTS IN HANGARS WATTAGE CONTROLLED: 32,400 W PEAK USE: 1,1-Yes, 0-NO) | 8 | BASELINE ENERGY CONSUMPTION 283,824 KWH/YR ECO ENERGY CONSUMPTION 198,677 KWH/YR | BASELINE DEMAND 32.4 KW ECO DEMAND 32.4 KW 32.4 KW | NET ENERGY SAVINGS 85,147 KWHMR NET DEMAND SAVINGS \$3,596 MR NET DOLLAR SAVINGS \$6,572 MR | MAINTENANCE SAVINGS | 108 LAMPS @ \$38.00 / 24,000 HOURS • 8,760 HR/YR = \$1,498 / YEAR (WITHOUT SKYLIGHTS) 108 LAMPS @ \$38.00 / 24,000 HOURS • 6,132 HR/YR = \$1,049 / YEAR (WITH SKYLIGHTS) | NET MAINTENANCE SAVINGS \$449 MEAR |
|--|---|--|--|---|---------------------|--|------------------------------------|
|--|---|--|--|---|---------------------|--|------------------------------------|

| | ========= | ======= | | | ======= | ========= |
|--|------------------|---|---|---|---------|----------------|
| Estimate: Description: Project: Location: Sq. footage: | HANGAR LIC | PRODUCT U | PGRADE Bid Date: Job #: City indx: | FEBRUARY 2, FEBRUARY 2, 94013.04 Raleigh, NC | 1995 | |
| | | | | | | |
| Line # | Descriptio | on | | | | |
| | Manhours | | Labor | Equipment | Sub | Total |
| ======================================= | ======= | _ = = = = = = = = = = = = = = = = = = = | | | | |
| 0002000000 | DEMOLITION | N, 2X4 FL | UORESCENT | FIXTURES | | |
| | 0.40 | 0.00 | 13.35 | 0.00 | | FIXTURE 13.35 |
| Unit values Totals | 0.49 48.51 | \$0 | \$1,322 | \$0 | \$0 | \$1,322 |
| 0002010000 | DEMOLTTIO | v. TNCAND | ESCENT FIX | TURES/EXIT | SIGNS | |
| 0002010000 | | | | | 11.00 | FIXTURE |
| Unit values Totals | 0.26 2.86 | 0.00 \$0 | 7.10 \$78 | 0.00 \$0 | 0.00 | 7.10 \$78 |
| | | · | • | • | • | 4.5 |
| 0010100000 | 2X4 2-32 MOUNTED | WATT FLU | ORESCENT I | LAMPS, RECES | 95.00 | FIXTURE |
| Unit values | 1.51 | 59.00 | 41.50 | 0.00 | 0.00 | 100.50 |
| Totals | 143.45 | \$5,605 | \$3,943 | \$0 | \$0 | \$9,548 |
| 0010500000 | 2X4 2-32 | WATT FLU | ORESCENT I | LAMPS, RECES | SSED | 7777777777 |
| Unit values | MOUNTED W | TH REFLE | 41.50 | 0.00 | | FIXTURE 116.50 |
| Totals | 6.04 | \$300 | \$166 | \$0 | | \$466 |
| 0010700000 | LED EXIT | SIGN, RET | ROFIT KIT | | | |
| | | | | 0.00 | | FIXTURE |
| Unit values Totals | 1.00 | 35.00 \$385 | \$303 | 0.00 \$0 | 0.00 | 62.50 \$688 |
| IOCGIS | 11.00 | Ų 3 0 3 | 4 555 | Ψ. | ** | 7 |
| U00 | 212 | \$6,290 | \$5,812 | \$0 | \$0 | \$12,102 |
| | | | | | | |

| | ======== | ======= | | | ======= | | | |
|--|---------------------------------------|--------------|---------|-----------|---------|---------------------------------------|--|--|
| Line # | Description | | | | | | | |
| | Manhours | Matl | Labor | Equipment | Sub | Total | | |
| ======================================= | ========= | ====== | ====== | | | | | |
| ESTIMATE TOTAL | 212 | \$6,290 | \$5,812 | \$0 | \$0 | \$12,102 | | |
| SALES TAX MATL MARKUP LABOR MARKUP | 5.00% 0.00% 0.00% | \$315 \$0 | \$0 | | | | | |
| EQUIPT MARKUP SUB MARKUP | 0.00% | | Ų O | \$0 | \$0 | | | |
| TOTAL BEFORE CO CONTINGENCY BOND PROFIT | ONTINGENC 5.00% 5.00% 10.00% | \$6,605 | \$5,812 | \$0 | \$0 | \$12,417 \$621 \$621 \$1,242 | | |
| JOB TOTAL | | | | | | \$14,900 | | |

\$14,900

Estimate:

LIGHTING UPGRADE Date: LIGHTING PRODUCT UPGRADE FEBRUARY 2, 1995

Description: Project:

HANGAR LIGHTING

Bid Date: FEBRUARY 2, 1995

Location: Sq. footage:

JOB TOTAL

BLDG 8944

Job #: 94013.04 City indx:Raleigh, NC

SUMMARY Matl Labor Equipment Sub Manhours \$6,290 \$5,812 \$0 \$0 \$12,102 212 UOO \$5,812 \$0 \$0 \$12,102 212 \$6,290 TOTAL \$315 SALES TAX 5.00% 0.00% \$0 MATL MARKUP \$0 0.00% LABOR MARKUP \$0 EQUIPT MARKUP 0.00% \$0 SUB MARKUP 0.00% \$0 \$0 \$12,417 TOTAL BEFORE CONTINGENC \$6,605 \$5,812 \$621 5.00% CONTINGENCY \$621 5.00% BOND \$1,242 10.00% PROFIT

U00

Estimate: BLDG 8944 Date: FEBRUARY 2, 1995
Description: CONVENTIONAL SKYLIGHT & CONTROLS Project: HANGAR STUDY Bid Date: FEBRUARY 2, 1995 BLDG 8944 Location: City indx:Raleigh, NC Description Line # Manhours Matl Labor Equipment Sub Total CONVENTIONAL SKYLIGHT WITH 4" INSULATED CURBS 0060000001 960.00 SQ. FT (DOUBLE PANED) 0.00 22.06 2.41 0.00 19.56 2.41 0.00 \$18,778 \$2,314 0.09 Unit values \$0 \$21,178 \$86 Totals \$0 \$21,178

\$18,778 \$2,314

0

\$86

| Line # | Description | on | | | | |
|---|---------------|-------------------|----------------|-------------|----------------|-------------------|
| | Manhours | Matl | Labor | Equipment | Sub ======= | Total |
| ======================================= | :======= | ======= | | | | |
| 1611350023 | LOW VOLTA | GE WIRE #1 | .8-4C | | 14.00 | |
| Unit values Totals | 1.23 17.22 | 15.40 \$216 | 34.00 \$476 | 0.00 \$0 | 0.00 \$0 | 49.40 \$692 |
| 1611750101 | LIGHTING | CONTACTOR | | | 6.00 | EA. |
| Unit values Totals | 2.00 12.00 | 137.00 \$822 | 55.00 \$330 | 0.00 \$0 | 0.00 | 192.00 \$1,152 |
| 1611850101 | PHOTO SWI | TCH 50-500 | FC ADJU | STABLE | 4.00 | EA. |
| Unit values Totals | 1.00 4.00 | 290.00 \$1,160 | 27.50 \$110 | | 0.00 | 317.50 \$1,270 |
| 1611870101 | LOW VOLTA | GE TRANS | 115V-24V | | 1.00 | EA. |
| Unit values Totals | 0.67 0.67 | 64.00 \$64 | 18.35 \$18 | | 0.00 | 82.35 \$82 |
| 1611870102 | SWITCHING | RELAYS | | | 8.00 | EA. |
| Unit values Totals | 0.50 4.00 | 11.30 \$90 | 13.75 \$110 | | 0.00 | 25.05 |
| 1611950101 | 1/2" EMT | 1 | | | 500.00 | LF |
| Unit values Totals | 0.05 25.00 | 0.38 \$190 | 1.29 \$645 | | 0.00 | 1.67 |
| U16 ELECTRICAL | 63 | \$2,542 | \$1,689 | \$0 | \$0 | \$4,231 |

| ============= | ======== | ======== | ======= | | ======= | ======= |
|---|---------------------------------------|----------------|------------|-----------|---------|---|
| Line # | Descripti | on | | | | |
| | Manhours | Matl | Labor | Equipment | Sub | Total |
| ======================================= | ======= | *===== | | | | |
| ESTIMATE TOTAL | 63 | \$21,320 | \$4,003 | \$86 | \$0 | \$25,409 |
| SALES TAX MATL MARKUP LABOR MARKUP | 5.00% 0.00% 0.00% | \$1,066 \$0 | \$0 | | | |
| EQUIPT MARKUP SUB MARKUP | 0.00% | | T - | \$0 | \$0 | |
| TOTAL BEFORE C CONTINGENCY BOND PROFIT | ONTINGENC 5.00% 5.00% 10.00% | \$22,386 | \$4,003 | \$86 | \$0 | \$26,475 \$1,324 \$1,324 \$2,648 |
| JOB TOTAL | | | | | | \$31,770 |

Estimate: BLDG 8944 Date: FEBRUARY 2, 1995
Description: CONVENTIONAL SKYLIGHT & CONTROLS
Project: HANGAR STUDY Bid Date: FEBRUARY 2, 1995
Location: BLDG 8944 Job #: 94013.04
Sq. footage: City indx:Raleigh, NC

Sq. footage:

D4. +000490. SUMMARY

| SUMMAKI | | | | | | |
|---|---------------------------------------|---------------------|--------------------|-------------|------------|---|
| | Manhours | Matl | Labor | Equipment | Sub | Total |
| ======================================= | ===== | | | | | |
| U00 U16 ELECTRICAL | 0 63 | \$18,778 \$2,542 | \$2,314 \$1,689 | \$86 \$0 | \$0 \$0 | \$21,178 \$4,231 |
| TOTAL | 63 | \$21,320 | \$4,003 | \$86 | \$0 | \$25,409 |
| SALES TAX MATL MARKUP LABOR MARKUP | 5.00% 0.00% 0.00% | \$1,066 \$0 | \$0 | | | |
| EQUIPT MARKUP SUB MARKUP | 0.00% 0.00% | | | \$0 | \$0 | |
| TOTAL BEFORE C CONTINGENCY BOND PROFIT | ONTINGENC 5.00% 5.00% 10.00% | \$22,386 | \$4,003 | \$86 | \$0 | \$26,475 \$1,324 \$1,324 \$2,648 |
| JOB TOTAL | | | | | | \$31,770 |

ENERGY CONSERVATION INVESTMENT PROGRAM (ECIP)

LLATION & LOCATION FORT PROCE LCCID FY95 (92) INSTALLATION & LOCATION: FORT BRAGG REGION NOS. 4 CENSUS: 3 PROJECT NO. & TITLE: 9647 SKY LIGHTS & LIGHTING PRODUCTS @ HANGARS FISCAL YEAR 95 DISCRETE PORTION NAME: LIGHTING 02-03-95 ECONOMIC LIFE 10 YEARS PREPARED BY: JAH ANALYSIS DATE: 1. INVESTMENT A. CONSTRUCTION COST 53422. B. SIOH \$
C. DESIGN COST \$ 2671. 2671. D. TOTAL COST (1A+1B+1C) \$ 58764. E. SALVAGE VALUE OF EXISTING EQUIPMENT \$ 0. F. PUBLIC UTILITY COMPANY REBATE \$ G. TOTAL INVESTMENT (1D - 1E - 1F) 58764. 2. ENERGY SAVINGS (+) / COST (-) DATE OF NISTIR 85-3273-X USED FOR DISCOUNT FACTORS OCT 1993 UNIT COST SAVINGS ANNUAL \$ DISCOUNT DISCOUNTED \$/ MWH(1) MWH/YR(2) SAVINGS(3) FACTOR(4) SAVINGS(5) FUEL 121. 4238. 0. A. ELECT \$ 34.95 8.77 37167. 0. 0. 0. 0. \$ \$ \$ B. DIST \$.00 \$ 0. \$ 0. \$ 0. \$ 0. \$ 3838. \$ 8076. 9.26 0. C. RESID \$.00 10.08 0. 0. D. NAT G \$.00 10.39 0. .00 E. COAL \$ 9.39 0. F. LPG S .00 8.78 M. DEMAND SAVINGS \$ 32585. 8.49 121. N. TOTAL 69751. 3. NON ENERGY SAVINGS(+) / COST(-) \$ 747. A. ANNUAL RECURRING (+/-) (1) DISCOUNT FACTOR (TABLE A) 8.49 (2) DISCOUNTED SAVING/COST (3A X 3A1) 6342. B. NON RECURRING SAVINGS(+) / COSTS(-) SAVINGS(+) YR DISCNT
COST(-) OC FACTR
(1) (2) (3) DISCOUNTED SAVINGS(+), COST(-)(4) ITEM SAVINGS(+)/ d. TOTAL \$ 0. C. TOTAL NON ENERGY DISCOUNTED SAVINGS(+)/COST(-)(3A2+3Bd4)\$ 6342. 4. FIRST YEAR DOLLAR SAVINGS 2N3+3A+(3Bd1/(YRS ECONOMIC LIFE))\$ 8823. 5. SIMPLE PAYBACK PERIOD (1G/4) 6.66 YEARS 6. TOTAL NET DISCOUNTED SAVINGS (2N5+3C) \$ 76093. 7. SAVINGS TO INVESTMENT RATIO (SIR) = (6 / 1G) =1.29 (IF < 1 PROJECT DOES NOT QUALIFY) 8. ADJUSTED INTERNAL RATE OF RETURN (AIRR): 5.80 %

70,303 KWH/YR 0 WATTS 10,730 WATTS 0 WATTS 0 WATTS 0 WATTS 0 WATTS 10.73 KW \$808 /YR \$2,475 MR OF HANGAR FACILITIES AT SIMMONS ARMY AIRFIELD PER KWH PER KW 29 W/FIXT = 58 W/FIXT = 87 W/FIXT = 118 W/FIXT = 58 W/FIXT = 125 W/FIXT **NET DEMAND SAVINGS** NET DOLLAR SAVINGS FORT BRAGG LIMITED ENERGY STUDY \$0.03495 REPLACEMENT FIXTURE DATA ECO ENERGY CONSUMPTION INTERIOR LIGHTING: FLUORESCENT FIXTURE REPLACEMENT 0 2 LAMP U @ 0 2 LAMP @ 185 2 LAMP @ 0 3 LAMP @ 0 4 LAMP @ 0 2 LAMP @ ELECTRIC COSTS ENERGY CHARGE DEMAND CHARGE **ECO 1: INTERIOR / EXTERIOR LIGHTING ECO DEMAND** MAINTENANCE SAVINGS **2 FOOT** 4 F00T 8 F00T **16 DECEMBER 1994** 118,002 KWH/YR 47,699 KWH/YR Ž 18.01 0 WATTS 0 WATTS 14,996 WATTS 3,014 WATTS 0 WATTS 0 WATTS 45 W/FIXT = 92 W/FIXT = 137 W/FIXT = 184 W/FIXT = 92 W/FIXT = 144 W/FIXT = BUILDING #: 9647 - HANGAR BASELINE ENERGY CONSUMPTION **NET ENERGY SAVINGS** 7:18 EXISTING FIXTURE DATA 2 LAMP U @ 1 LAMP @ 163 2 LAMP @ 22 3 LAMP @ 4 LAMP @ BASELINE DEMAND AREA USE: HOURS/DAY 2 LAMP @ DAYSWEEK 2 FOOT 8 FOOT 4 F001

(4' FLUORESCENT LAMPS)

\$36 / YEAR

6,570 HR/YR =

36 MEAR

NET MAINTENANCE SAVINGS

\$5.00 / 20,000 HOURS *

22 LAMPS @

| FORT B | FORT BRAGG LIMITED ENERGY STUDY | ED ENERGY S | TUDY | |
|--|---|---|--|---|
| OF HANGAR FACILITIES AT SIMMONS ARMY AIRFIELD ECO 1: INTERIOR / EXTERIOR LIGHTING 16 DECEMBER 1994 | ACILITIES AT SIMMONS A ECO 1: INTERIOR / EXTERIOR LIGHTING 16 DECEMBER 1994 | SIMMONS AR STERIOR LIGHTING ER 1994 | MY AIRFIEL | .D |
| | INTERIOR LIGHTING: EXIT SIGN REPLACEMENT | T SIGN REPLACEMENT | | |
| BUILDING #: 9647 - HANGAR | | ELECTRIC COSTS. ENERGY CHARGE DEMAND CHARGE | \$0.03495 PER KWH \$9.25 PER KW | |
| | | | | |
| INCANDESCENTEXITSIGNS | FLUORESCENT EXIT SIGNS | SIGNS | REPLACEMENT SIGNS | GNS |
| # OF EXIT SIGNS: | # OF EXIT SIGNS: | 0 | # OF EXIT SIGNS: | 11 |
| WATTAGE: 30 | WATTAGE: | .: 18 | WATTAGE: | 3 |
| | | | | |
| BASELINĖ ENERGY CONSUMPTION | 2,891 KWH/YR | ECO ENERGY CONSUMPTION | PTION | 289 KWH/YR |
| BASELINE DEMAND | 0.33 KW | ECO DEMAND | | 0.03 KW |
| NET ENERGY SAVINGS | 2,602 KWH/YR | NET DEMAN | NET DEMAND SAVINGS NET DOLLAR SAVINGS | \$33 MR \$124 MR |
| | MAINTENANCE SAVINGS | E SAVINGS | | |
| 11 LAMPS @ \$3.50 / 1,000 HOURS • LAMPS @ / 10,000 HOURS • | | 8,760 HR/YR = \$337 HR/YR = \$0 | \$337 / YEAR (INCANDESCENT) | (INCANDESCENT) (COMPACT FLUORESCENT) |
| NET MAINTENANCE SAVINGS | NCE SAVINGS | \$337 IYEAR | | |

165,564 KWH/YR ₹ \$2,997 MR \$5,477 MR (WITHOUT SKYLIGHTS) (WITH SKYLIGHTS) 27 OF HANGAR FACILITIES AT SIMMONS ARMY AIRFIELD PER KWH PER KW NET DEMAND SAVINGS NET DOLLAR SAVINGS \$0.03495 FORT BRAGG LIMITED ENERGY STUDY 6,132 \$1,248 / YEAR \$874 / YEAR **ECO ENERGY CONSUMPTION** REVISED USAGE: HOURS/YEAR ELECTRIC COSTS; ENERGY CHARGE DEMAND CHARGE **ECO 1: INTERIOR / EXTERIOR LIGHTING** CONVENTIONAL SKY LIGHTS IN HANGARS \$374 N'EAR **ECO DEMAND** MAINTENANCE SAVINGS 8,760 HR/YR = 6,132 HR/YR = 02 FEBRUARY 1995 236,520 KWH/YR 70,956 KWH/YR ₹ **NET MAINTENANCE SAVINGS** 27 \$38.00 / 24,000 HOURS * \$38.00 / 24,000 HOURS * 27,000 W 1 (1-YES, 0-NO) 8,760 BUILDING #: 9647 - HANGAR **NET ENERGY SAVINGS** BASELINE ENERGY CONSUMPTION 90 LAMPS @___90 LAMPS @__ WATTAGE CONTROLLED: PEAK USE: CURRENT USAGE: HOURS/YEAR BASELINE DEMAND

Unit values

Totals

1.00

11.00

35.00

\$385

27.50

\$303

0.00

\$0

_______ FEBRUARY 2, 1995 LIGHTING UPGRADE Date: Estimate: LIGHTING PRODUCT UPGRADE Description: Bid Date: FEBRUARY 2, 1995 HANGAR LIGHTING Project: 94013.04 Job #: BLDG9647 Location: City indx: Raleigh, NC Sq. footage: Description Line # Labor Equipment Matl Manhours 0002000000 DEMOLITION, 2X4 FLUORESCENT FIXTURES 148.00 FIXTURE 0.49 0.00 Unit values 0.00 13.35 0.00 13.35 72.52 \$0 \$1,976 \$0 \$0 Totals \$1,976 DEMOLITION, INCANDESCENT FIXTURES/EXIT SIGNS 0002010000 11.00 FIXTURE 0.00 7.10 0.00 Unit values 0.26 0.00 7.10 \$0 Totals 2.86 \$0 \$78 \$0 \$78 0002020000 DEMOLITION, 1X4 FLUORESCENT FIXTURES 37.00 FIXTURE 0.00 13.35 0.00 0.00 13.35 0.49 Unit values \$0 \$494 \$0 \$0 \$494 Totals 18.13 2X4 2-32 WATT FLUORESCENT LAMPS, RECESSED 0010100000 126.00 FIXTURE MOUNTED 0.00 41.50 0.00 59.00 100.50 Unit values 1.51 \$5,229 \$0 \$0 \$12,663 \$7,434 Totals 190.26 0010300000 1X4 2-32 WATT FLUORESCENT LAMPS, WALL MOUNTED 26.00 FIXTURE 0.00 60.00 31.50 0.00 91.50 Unit values 1.14 \$1,560 \$819 \$0 \$0 Totals 29.64 \$2,379 0010400000 1X4 2-32 WATT FLUORESCENT LAMPS, PENDANT MOUNTED 11.00 FIXTURE Unit values 1.14 39.00 31.50 0.00 0.00 70.50 Totals 12.54 \$429 \$347 \$0 \$0 \$776 0010500000 2X4 2-32 WATT FLUORESCENT LAMPS, RECESSED MOUNTED WITH REFLECTORS 22.00 FIXTURE Unit values 1.51 75.00 41.50 0.00 0.00 116.50 \$913 Totals 33.22 \$1,650 \$0 \$0 \$2,563 0010700000 LED EXIT SIGN, RETROFIT KIT

62.50

\$688

11.00 FIXTURE

0.00

\$0

| Line # | Descripti | on | | | | |
|---|---|--------------|----------|-----------|-----|---|
| | Manhours | Matl | Labor | Equipment | Sub | Total |
| U00 | 371 | \$11,458 | \$10,159 | \$0 | \$0 | \$21,617 |
| ESTIMATE TOTAL | 371 | \$11,458 | \$10,159 | \$0 | \$0 | \$21,617 |
| SALES TAX MATL MARKUP LABOR MARKUP EQUIPT MARKUP SUB MARKUP | 5.00% 0.00% 0.00% 0.00% 0.00% | \$573 \$0 | \$0 | \$0 | \$0 | |
| TOTAL BEFORE C CONTINGENCY BOND PROFIT | ONTINGENC 5.00% 5.00% 10.00% | \$12,031 | \$10,159 | \$0 | \$0 | \$22,190 \$1,109 \$1,109 \$2,219 |
| JOB TOTAL | | | | | | \$26,628 |

FEBRUARY 2, 1995

Estimate: LIGHTING UPGRADE Date: FEBRUARY 2, 1995
Description: LIGHTING PRODUCT UPGRADE
Project: HANGAR LIGHTING Bid Date: FEBRUARY 2, 1995 Project: HANGAR LI Location: BLDG9647

Job #: 94013.04 City indx:Raleigh, NC Sq. footage:

| | Manhours | Matl | Labor | Equipment | Sub | Total |
|-----------------------------|---------------------|--------------|----------|-----------|-----|-------------------------------|
| | | | | | | |
| 000 | 371 | \$11,458 | \$10,159 | \$0 | \$0 | \$21,617 |
| TOTAL | 371 | \$11,458 | \$10,159 | \$0 | \$0 | \$21,617 |
| SALES TAX MATL MARKUP | 5.00% 0.00% | \$573 \$0 | | | | |
| LABOR MARKUP | 0.00% | ŞU | \$0 | ^ | | |
| EQUIPT MARKUP SUB MARKUP | 0.00% 0.00% | | | \$0 | \$0 | |
| TOTAL BEFORE CONTINGENCY | CONTINGENC 5.00% | \$12,031 | \$10,159 | \$0 | \$0 | \$22,190 \$1,109 |
| BOND | 5.00% | | | | | \$1,109 \$1,109 \$2,219 |
| PROFIT | 10.00% | | | | | |
| JOB TOTAL | | | | | | \$26,628 |

_______ Estimate: BLDG 9647 Date: FEBRUARY 2, 1995
Description: CONVENTIONAL SKYLIGHT & CONTROLS
Project: HANGAR STUDY Bid Date: FEBRUARY 2, 1995
Location: BLDG 9647 Job #: 94013.04

Sq. footage:

City indx: Raleigh, NC

Line # Description

Manhours Matl Labor Equipment Sub Total 0060000001 CONVENTIONAL SKYLIGHT WITH 4" INSULATED CURBS (DOUBLE PANED) 780.00 SQ. FT 0.00 19.56 2.41 0.00 \$15,257 \$1,880 Unit values 0.09 0.00 22.06 Totals \$70 \$0 \$17,207

UOO \$15,257 0 \$1,880 \$70 \$0 \$17,207

| ======================================= | ======== | | | ====================================== | ====== | ======== | |
|---|--|-------------------|----------------|--|-----------------------|-----------------------|--|
| Line # | Description | on | | | | | |
| | Manhours | Matl | Labor | Equipment | Sub | Total | |
| ======================================= | | | | | | | |
| 1611350023 | LOW VOLTA | GE WIRE #: | 18-4C | | | | |
| Unit values Totals | 1.23 17.22 | 15.40 \$216 | 34.00 \$476 | | 14.00 0.00 \$0 | CLF 49.40 \$692 | |
| 1611750101 | LIGHTING (| CONTACTOR | | | <i>c</i> 00 | | |
| Unit values Totals | 2.00 | 137.00 \$822 | 55.00 \$330 | 0.00 \$0 | 6.00 0.00 \$0 | 192.00 \$1,152 | |
| 1611850101 | PHOTO SWITCH 50-500 FC ADJUSTABLE 4.00 EA. | | | | | | |
| Unit values Totals | 1.00 4.00 | 290.00 \$1,160 | 27.50 \$110 | 0.00 \$0 | 4.00 0.00 \$0 | 317.50 \$1,270 | |
| 1611870101 | LOW VOLTAG | E TRANS | l15V-24V | | | | |
| Unit values Totals | 0.67 0.67 | 64.00 \$64 | 18.35 \$18 | 0.00 \$0 | 1.00 0.00 \$0 | EA. 82.35 \$82 | |
| 1611870102 | SWITCHING | RELAYS | | | | | |
| Unit values Totals | 0.50 4.00 | 11.30 \$90 | 13.75 \$110 | 0.00 | 8.00 0.00 \$0 | EA. 25.05 \$200 | |
| 1611950101 | 1/2" EMT | | | | | | |
| Unit values Totals | 0.05 25.00 | 0.38 \$190 | 1.29 \$645 | 0.00 \$0 | 500.00 0.00 \$0 | LF 1.67 \$835 | |
| U16 ELECTRICAL | 63 | \$2,542 | \$1,689 | \$0 | \$0 | \$4,231 | |

| Line # | Descripti | on | | | | |
|---|---------------------------------------|--------------|---------|-----------|-----|---|
| | Manhours | Matl | Labor | Equipment | Sub | Total |
| | | ====== | | | | |
| ESTIMATE TOTAL | 63 | \$17,799 | \$3,569 | \$70 | \$0 | \$21,438 |
| SALES TAX MATL MARKUP LABOR MARKUP | 5.00% 0.00% 0.00% | \$890 \$0 | \$0 | | | |
| EQUIPT MARKUP SUB MARKUP | 0.00% 0.00% | | ** | \$0 | \$0 | |
| TOTAL BEFORE C CONTINGENCY BOND PROFIT | ONTINGENC 5.00% 5.00% 10.00% | \$18,689 | \$3,569 | \$70 | \$0 | \$22,328 \$1,116 \$1,116 \$2,233 |
| JOB TOTAL | | | | | | \$26,794 |

Estimate: BLDG 9647 Date: FEBRUARY 2, 1995
Description: CONVENTIONAL SKYLIGHT & CONTROLS
Project: HANGAR STUDY Bid Date: FEBRUARY 2, 1995

BLDG 9647

Job #: 94013.04

Location:
So. food Sq. footage:

City indx:Raleigh, NC

SUMMARY

| | UMMARY | | | | | |
|--|---------------------------------------|---------------------|--------------------|-------------|------------|---|
| | Manhours | Matl | Labor | Equipment | Sub | Total |
| | | | | | | |
| U00 U16 ELECTRICAL | 0 63 | \$15,257 \$2,542 | \$1,880 \$1,689 | \$70 \$0 | \$0 \$0 | \$17,207 \$4,231 |
| TOTAL | 63 | \$17,799 | \$3,569 | \$70 | \$0 | \$21,438 |
| SALES TAX MATL MARKUP LABOR MARKUP | 5.00% 0.00% 0.00% | \$890 \$0 | \$0 | | | |
| EQUIPT MARKUP SUB MARKUP | 0.00% | | Ψ° | \$0 | \$0 | |
| TOTAL BEFORE CONTINGENCY BOND PROFIT | ONTINGENC 5.00% 5.00% 10.00% | \$18,689 | \$3,569 | \$70 | \$0 | \$22,328 \$1,116 \$1,116 \$2,233 |
| JOB TOTAL | | | | | | \$26,794 |

NON-RECOMMENDED LIGHTING ANALYSES

LIFE CYCLE COST ANALYSIS SUMMARY

ENERGY CONSERVATION INVESTMENT PROGRAM (ECIP)

INSTALLATION & LOCATION: FORT BRAGG REGION NOS. 4 CENSUS: 3 PROJECT NO. & TITLE: 29360 NONBAY LIGHTING UPGRADE @ BLDG 2936 FISCAL YEAR 95 DISCRETE PORTION NAME: LIGHTING ANALYSIS DATE: 02-03-95 ECONOMIC LIFE 10 YEARS PREPARED BY: JAH 1. INVESTMENT A. CONSTRUCTION COST \$ 69808. B. STOH 3490. C. DESIGN COST 3490. D. TOTAL COST (1A+1B+1C) \$ 76789. E. SALVAGE VALUE OF EXISTING EQUIPMENT \$
F. PUBLIC UTILITY COMPANY REBATE \$
G. TOTAL INVESTMENT (1D - 1E - 1F) 0. 76789. 2. ENERGY SAVINGS (+) / COST (-) DATE OF NISTIR 85-3273-X USED FOR DISCOUNT FACTORS OCT 1993 UNIT COST SAVINGS ANNUAL \$ DISCOUNT DISCOUNTED \$/ MWH(1) MWH/YR(2) SAVINGS(3) FACTOR(4) SAVINGS(5) FUEL 93. \$ 3239. 8.77 \$
0. \$ 0. 9.26 \$
0. \$ 0. 10.08 \$
0. \$ 0. 10.39 \$
0. \$ 0. 9.39 \$
0. \$ 0. 8.78 \$
\$ 5495. 8.49 \$
93. \$ 8734. \$ A. ELECT \$ 34.95 28403. B. DIST \$.00 0. C. RESID \$.00
D. NAT G \$.00
E. COAL \$.00
F. LPG \$.00 0. 0. \$ 0. \$ 0. \$ 46653. M. DEMAND SAVINGS N. TOTAL 75055. 3. NON ENERGY SAVINGS(+) / COST(-) \$ 8.49 A. ANNUAL RECURRING (+/-) 484. (1) DISCOUNT FACTOR (TABLE A) (2) DISCOUNTED SAVING/COST (3A X 3A1) 4109. B. NON RECURRING SAVINGS(+) / COSTS(-) SAVINGS(+) YR DISCNT DISCOUNTED

COST(-) OC FACTR SAVINGS(+)/

(1) (2) (3) COST(-)(4) ITEM d. TOTAL \$ 0. C. TOTAL NON ENERGY DISCOUNTED SAVINGS(+)/COST(-)(3A2+3Bd4)\$ 4109. 4. FIRST YEAR DOLLAR SAVINGS 2N3+3A+(3Bd1/(YRS ECONOMIC LIFE))\$ 8.33 YEARS 5. SIMPLE PAYBACK PERIOD (1G/4) 6. TOTAL NET DISCOUNTED SAVINGS (2N5+3C) \$ 79164. 7. SAVINGS TO INVESTMENT RATIO (SIR)=(6 / 1G)= 1.03 (IF < 1 PROJECT DOES NOT QUALIFY) 8. ADJUSTED INTERNAL RATE OF RETURN (AIRR): 3.41 %

| Q | | | | 0 WATTS | 20,184 WATTS 14,181 WATTS 0 WATTS | 0 WATTS | 107,219 KWH/YR | 34.37 KW | \$2,504 MR \$4,965 MR |
|---|--|--|--------------------------|------------------------|---|-------------------------------------|-----------------------------|-----------------|--|
| FORT BRAGG LIMITED ENERGY STUDY OF HANGAR FACILITIES AT SIMMONS ARMY AIRFIELD ECO 1: INTERIOR / EXTERIOR LIGHTING 16 DECEMBER 1994 | E REPLACEMENT | COSTS: \$0.03495 PER KWH CHARGE \$9.25 PER KW | REPLACEMENT FIXTURE DATA | 2 LAMP U @ 58 W/FIXT = | 348 2 LAMP @ 58 W/FIXT = 163 3 LAMP @ 87 W/FIXT = 0 4 LAMP @ 118 W/FIXT = | 0 2 LAMP @ 125 W/FIXT = | ECO ENERGY CONSUMPTION | АИД | NET DEMAND SAVINGS NET DOLLAR SAVINGS |
| RAGG LIMITED ENERGY CILITIES AT SIMMONS ECO 1: INTERIOR / EXTERIOR LIGHTING 16 DECEMBER 1994 | INTERIOR LIGHTING: FLUORESCENT FIXTURE REPLACEMENT | ELECTRIC COSTS: ENERGY CHARGE DEMAND CHARGE | REPLACE | 2 FOOT 0 | 4 FOOT 348 163 0 | 8 FOOT 0 | | W ECO DEMAND | |
| AR FACILITIE | INTERIOR LIGHTING: | | | = 0 WATTS | 8,648 WATTS 0 WATTS 29,992 WATTS | : 18,288 WATTS | 177,615 KWH/YR | 56.93 KW | 70,397 KWH/YR |
| FC OF HANG | | BUILDING #: 2936 - HANGAR AREA USE: HOURS/DAY DAYS/WEEK 5 | EXISTING FIXTURE DATA | 2 LAMP U @ 92_W/FIXT = | 4 FOOT 94 2 LAMP @ 92 W/FIXT = 3 LAMP @ 137 W/FIXT = 163 4 LAMP @ 184 W/FIXT = | 8 FOOT 127 2 LAMP @ 144 W/FIXT = | BASELINE ENERGY CONSUMPTION | BASELINE DEMAND | NET ENERGY SAVINGS |

\$127 / YEAR (4' FLUORESCENT LAMPS)

\$127 NEAR

NET MAINTENANCE SAVINGS

\$5.00 / 20,000 HOURS *

163 LAMPS @

MAINTENANCE SAVINGS

3,120 HR/YR =

2,184 KWH/YR 0 WATTS 0 WATTS 0 WATTS 500 WATTS 0 WATTS 0.50 KW \$0 MR \$61 MR (MERCURY VAPOR) (HIGH PRESSURE SODIUM) OF HANGAR FACILITIES AT SIMMONS ARMY AIRFIELD PER KWH PER KW 250 WATTS = WATTS = WATTS = WATTS = WATTS = **NET DEMAND SAVINGS NET DOLLAR SAVINGS FORT BRAGG LIMITED ENERGY STUDY** \$0.03495 \$27 / YEAR \$14 / YEAR REPLACEMENT FIXTURE DATA ECO ENERGY CONSUMPTION INTERIOR LIGHTING: LIGHTING REPLACEMENT ELECTRIC COSTS: ENERGY CHARGE DEMAND CHARGE **ECO 1: INTERIOR / EXTERIOR LIGHTING** \$13 MEAR MAINTENANCE SAVINGS ECO DEMAND 000000 4,380 HR/YR = 4,380 HR/YR = **16 DECEMBER 1994** 3,931 KWH/YR 1,747 KWH/YR 0.90 KW **NET MAINTENANCE SAVINGS** \$50.00 / 16,000 HOURS * \$38.00 / 24,000 HOURS * 0 WATTS 0 WATTS 900 WATTS 0 WATTS 0 WATTS $\frac{12}{7}$ (1-YES, 0-NO) WATTS = WATTS = WATTS = WATTS = WATTS = BUILDING #: 2936 - HANGAR BASELINE ENERGY CONSUMPTION **NET ENERGY SAVINGS** 2 LAMPS @ 450 EXISTING FIXTURE DATA INCAND @ QUARTZ @ QUARTZ @ BASELINE DEMAND AREA USE: DAYSWEEK PEAK USE HOURS/DAY @@ ¥¥

289 KWH/YR (INCANDESCENT) (COMPACT FLUORESCENT) \$33 MR \$124 MR 0.03 KW က REPLACEMENT SIGNS OF HANGAR FACILITIES AT SIMMONS ARMY AIRFIELD \$0.03495 PER KWH \$9.25 PER KW # OF EXIT SIGNS: WATTAGE: NET DEMAND SAVINGS NET DOLLAR SAVINGS FORT BRAGG LIMITED ENERGY STUDY \$337 / YEAR \$0 / YEAR ECO ENERGY CONSUMPTION INTERIOR LIGHTING: EXIT SIGN REPLACEMENT ELECTRIC COSTS: ENERGY CHARGE DEMAND CHARGE ECO 1: INTERIOR / EXTERIOR LIGHTING
16 DECEMBER 1994 \$337 NEAR **ECO DEMAND** MAINTENANCE SAVINGS 0 18 8,760 HRYR = HRYR = FLUORESCENT EXIT SIGNS # OF EXIT SIGNS: WATTAGE: 2,891 KWH/YR 2,602 KWH/YR 0.33 KW **NET MAINTENANCE SAVINGS** \$3.50 / 1,000 HOURS * / 10,000 HOURS * ဓ Ξ BUILDING #: 2936 - HANGAR BASELINE ENERGY CONSUMPTION INCANDESCENT EXIT SIGNS **NET ENERGY SAVINGS** 11 LAMPS @ 0 LAMPS @ # OF EXIT SIGNS: WATTAGE: BASELINE DEMAND

25

_______ FEBRUARY 2, 1995 Estimate: LIGHTING UPGRADE Date: LIGHTING PRODUCT UPGRADE Description: HANGAR LIGHTING Bid Date: FEBRUARY 2, 1995 Project: BLDG 2936 Job #: 94013.04 Location: Sq. footage: City indx:Raleigh, NC ______ Line # Description Matl Labor Equipment Sub Manhours ______ 0002000000 DEMOLITION, 2X4 FLUORESCENT FIXTURES 184.00 FIXTURE 0.00 13.35 0.00 0.00 13.35 Unit values 0.49 Totals 90.16 \$0 \$2,456 \$0 \$0 \$2,456 0002010000 DEMOLITION, INCANDESCENT FIXTURES/EXIT SIGNS 11.00 FIXTURE 7.10 0.00 7.10 0.00 0.00 Unit values 0.26 \$0 \$78 \$0 \$0 \$78 Totals 2.86 0002020000 DEMOLITION, 1X4 FLUORESCENT FIXTURES 200.00 FIXTURE 0.49 0.00 13.35 0.00 0.00 13.35 Unit values \$0 Totals 98.00 \$0 \$2,670 \$0 \$2,670 1X4 2-32 WATT FLUORESCENT LAMPS, SURFACE 0010000000 13.00 FIXTURE MOUNTED 60.00 31.50 0.00 0.00 91.50 Unit values 1.14 14.82 \$780 \$410 \$0 \$0 \$1,190 Totals 0010100000 2X4 2-32 WATT FLUORESCENT LAMPS, RECESSED MOUNTED 21.00 FIXTURE 59.00 Unit values 1.51 41.50 0.00 0.00 100.50 31.71 \$1,239 \$872 \$0 \$0 \$2,111 Totals 0010200000 1X4 2-32 WATT FLUORESCENT LAMPS, RECESSED 45.00 FIXTURE MOUNTED 82.50 31.50 0.00 Unit values 1.14 51.00 0.00 \$0 \$3,713 Totals 51.30 \$2,295 \$1,418 \$0 0010300000 1X4 2-32 WATT FLUORESCENT LAMPS, WALL MOUNTED 3.00 FIXTURE 91.50 0.00 0.00 60.00 31.50 Unit values 1.14 \$275 \$95 \$0 \$0 \$180 Totals 3.42 1X4 2-32 WATT FLUORESCENT LAMPS, PENDANT 0010400000 266.00 FIXTURE MOUNTED 31.50 0.00 70.50 39.00 0.00 Unit values 1.14 \$0 \$18,753 303.24 \$10,374 \$8,379 \$0 Totals 0010500000 2X4 2-32 WATT FLUORESCENT LAMPS, RECESSED 163.00 FIXTURE MOUNTED WITH REFLECTORS

| 03-Feb-95 | MeansData for Lotus | | | | | | Page : | | |
|-----------------------|----------------------|----------------|------------------|-------------|-------------|---------------------------|--------|--|--|
| Unit values Totals | 1.51 246.13 | | 41.50 \$6,765 | 0.00 \$0 | 0.00 | 116.50 \$18,990 | | | |
| 0010700000 | LED EXIT | SIGN, RETR | OFIT KIT | | | | | | |
| Unit values Totals | 1.00 11.00 | 35.00 \$385 | 27.50 \$303 | 0.00 \$0 | 0.00 \$0 | FIXTURE 62.50 \$688 | | | |
| 0010800000 | | HIGH PRES | | EXTERIOR | 2.00 | FIXTURE | | | |
| Unit values Totals | | | 55.00 \$110 | 0.00 \$0 | | 269.00 \$538 | | | |
| 0050000000 | ELECTRIC 1-1/4" I | | UBING (EMT) | • | 100.00 | L.F. | | | |
| Unit walues | | 1 16 | 2 20 | 0 00 | 0 00 | 3 36 | | | |

2

| Line # | Description | | | | | |
|---|---|----------------|----------|-----------|-----|---|
| | Manhours | Matl | Labor | Equipment | Sub | Total |
| U00 | 948 | \$29,582 | \$26,562 | \$550 | \$0 | \$56,694 |
| ESTIMATE TOTAL | 948 | \$29,582 | \$26,562 | \$550 | \$0 | \$56,694 |
| SALES TAX MATL MARKUP LABOR MARKUP EQUIPT MARKUP SUB MARKUP | 5.00% 0.00% 0.00% 0.00% 0.00% | \$1,479 \$0 | \$0 | \$0 | \$0 | |
| TOTAL BEFORE CONTINGENCY BOND PROFIT | ONTINGENC 5.00% 5.00% 10.00% | \$31,061 | \$26,562 | \$550 | \$0 | \$58,173 \$2,909 \$2,909 \$5,817 |
| JOB TOTAL | | | | | | \$69,808 |

Estimate: LIGHTING UPGRADE Date: FEBRUARY 2, 1995
Description: LIGHTING PRODUCT UPGRADE
Project: HANGAR LIGHTING Bid Date: FEBRUARY 2, 1995
Location: BLDG 2936 Job #: 94013.04

Location:

Sq. footage: City indx:Raleigh, NC

SUMMARY

| | Manhours | Matl | Labor | Equipment | Sub | Total |
|---|--|----------------|----------|-----------|-----|---|
| | | | | | | |
| U00 | 948 | \$29,582 | \$26,562 | \$550 | \$0 | \$56,694 |
| TOTAL | 948 | \$29,582 | \$26,562 | \$550 | \$0 | \$56,694 |
| SALES TAX MATL MARKUP LABOR MARKUP | 5.00% 0.00% 0.00% | \$1,479 \$0 | \$0 | | | |
| EQUIPT MARKUP | | | ** | \$0 | \$0 | |
| TOTAL BEFORE CONTINGENCY BOND PROFIT | CONTINGENC 5.00% 5.00% 10.00% | \$31,061 | \$26,562 | \$550 | \$0 | \$58,173 \$2,909 \$2,909 \$5,817 |
| JOB TOTAL | | | | | | \$69,808 |

LIFE CYCLE COST ANALYSIS SUMMARY STUDY: 30070
ENERGY CONSERVATION INVESTMENT PROGRAM (ECIP) LCCID FY95 (92)
INSTALLATION & LOCATION: FORT BRAGG REGION NOS. 4 CENSUS: 3 PROJECT NO. & TITLE: 3007H NONBAY LIGHTING UPGRADE @ BLDG 3007 FISCAL YEAR 95 DISCRETE PORTION NAME: LIGHTING ANALYSIS DATE: 02-03-95 ECONOMIC LIFE 10 YEARS PREPARED BY: JAH 1. INVESTMENT A. CONSTRUCTION COST 26016. 1301. B. SIOH C. DESIGN COST 1301. D. TOTAL COST (1A+1B+1C) \$ E. SALVAGE VALUE OF EXISTING EQUIPMENT \$ 0. F. PUBLIC UTILITY COMPANY REBATE 0. G. TOTAL INVESTMENT (1D - 1E - 1F) 28618. 2. ENERGY SAVINGS (+) / COST (-) DATE OF NISTIR 85-3273-X USED FOR DISCOUNT FACTORS OCT 1993 UNIT COST SAVINGS ANNUAL \$ DISCOUNTED FUEL \$/ MWH(1) MWH/YR(2) SAVINGS(3) FACTOR(4) SAVINGS(5) A. ELECT \$ 34.95 29.
B. DIST \$.00 0.
C. RESID \$.00 0.
D. NAT G \$.00 0.
E. COAL \$.00 0. 1008. 8.77 8844. \$ 0. \$ 0. \$ 0. \$ 0. \$ 0. \$ 934. \$ 1942. 9.26 0. 10.08 0. 10.39 0. 9.39 0. 8.78 0. M. DEMAND SAVINGS 8.49 7930. 29. \$ N. TOTAL 16773. 3. NON ENERGY SAVINGS(+) / COST(-) A. ANNUAL RECURRING (+/-)553. (1) DISCOUNT FACTOR (TABLE A) 8.49 (2) DISCOUNTED SAVING/COST (3A X 3A1) 4695. B. NON RECURRING SAVINGS(+) / COSTS(-) SAVINGS(+) YR DISCNT DISCOUNTED
COST(-) OC FACTR SAVINGS(+),
(1) (2) (3) COST(-)(4) ITEM SAVINGS(+)/ d. TOTAL Ŝ 0. C. TOTAL NON ENERGY DISCOUNTED SAVINGS(+)/COST(-)(3A2+3Bd4)\$ 4695. 4. FIRST YEAR DOLLAR SAVINGS 2N3+3A+(3Bd1/(YRS ECONOMIC LIFE))\$ 2495. 11.47 YEARS 5. SIMPLE PAYBACK PERIOD (1G/4) 6. TOTAL NET DISCOUNTED SAVINGS (2N5+3C) \$ 21468. 7. SAVINGS TO INVESTMENT RATIO (SIR)=(6 / 1G)= .75 (IF < 1 PROJECT DOES NOT QUALIFY) 8. ADJUSTED INTERNAL RATE OF RETURN (AIRR): .18 %

LIFE CYCLE COST ANALYSIS SUMMARY

STUDY: 30070

KWH/YR 64 WATTS 10,208 WATTS 174 WATTS 0 WATTS 0 WATTS 0 WATTS 10.45 KW \$883 NR \$1,751 MR 32,592 OF HANGAR FACILITIES AT SIMMONS ARMY AIRFIELD PER KWH PER KW 32 W/FIXT = 58 W/FIXT = 87 W/FIXT = 118 W/FIXT = 58 W/FIXT = 125 W/FIXT NET DEMAND SAVINGS NET DOLLAR SAVINGS FORT BRAGG LIMITED ENERGY STUDY \$0.03495 REPLACEMENT FIXTURE DATA ECO ENERGY CONSUMPTION INTERIOR LIGHTING: FLUORESCENT FIXTURE REPLACEMENT 0 2 LAMP U @ 2 1 LAMP @ 176 2 LAMP @ 2 3 LAMP @ 4 LAMP @ ELECTRIC COSTS: ENERGY CHARGE DEMAND CHARGE 0 2 LAMP @ **ECO 1: INTERIOR / EXTERIOR LIGHTING ECO DEMAND** MAINTENANCE SAVINGS **2 FOOT 4** FOOT 8 FOOT **16 DECEMBER 1994** 57,424 KWH/YR 24,832 KWH/YR ξ 18.41 12,604 WATTS 5,343 WATTS 368 WATTS 0 WATTS 0 WATTS 45 W/FIXT = 92 W/FIXT = 137 W/FIXT = 184 W/FIXT = 92 W/FIXT = 144 W/FIXT = 3007 - HANGAR BASELINE ENERGY CONSUMPTION **NET ENERGY SAVINGS** 5 2 EXISTING FIXTURE DATA 2 LAMP U@ BUILDING #: AREA USE: HOURS/DAY 2 1 LAMP @ 137 2 LAMP @ 39 3 LAMP @ 2 4 LAMP @ BASELINE DEMAND DAYSWEEK 2 LAMP @ 2 F00T 4 F00T

(4' FLUORESCENT LAMPS)

\$32 / YEAR

3,120 HRYR =

\$32 MEAR

NET MAINTENANCE SAVINGS

\$5.00 / 20,000 HOURS •

41 LAMPS @

447 KWH/YR (INCANDESCENT) (COMPACT FLUORESCENT) 0.05 KW \$51 MR \$191 MR 7 က REPLACEMENT SIGNS OF HANGAR FACILITIES AT SIMMONS ARMY AIRFIELD PER KWH PER KW # OF EXIT SIGNS: WATTAGE: NET DEMAND SAVINGS NET DOLLAR SAVINGS \$0.03495 FORT BRAGG LIMITED ENERGY STUDY \$521 / YEAR \$0 / YEAR ECO ENERGY CONSUMPTION ELECTRIC COSTS: ENERGY CHARGE DEMAND CHARGE INTERIOR LIGHTING: EXIT SIGN REPLACEMENT ECO 1: INTERIOR / EXTERIOR LIGHTING 16 DECEMBER 1994 \$521 NEAR ECO DEMAND MAINTENANCE SAVINGS 0 18 8,760 HR/YR = HR/YR = FLUORESCENT EXIT SIGNS # OF EXIT SIGNS: WATTAGE: 4,468 KWH/YR 4,021 KWH/YR 0.51 KW **NET MAINTENANCE SAVINGS** \$3.50 /1,000 HOURS * / 10,000 HOURS * 8 17 BUILDING #: 3007 - HANGAR INCANDESCENT EXIT SIGNS BASELINE ENERGY CONSUMPTION **NET ENERGY SAVINGS** 17 LAMPS @ LAMPS @ # OF EXIT SIGNS: WATTAGE: BASELINE DEMAND

Estimate: LIGHTING UPGRADE FEBRUARY 2, 1995 Date: Description: LIGHTING PRODUCT UPGRADE Project: HANGAR LIGHTING Bid Date: FEBRUARY 2, 1995 Location: BLDG 3007 Job #: 94013.04 Sq. footage: City indx: Raleigh, NC ________ Line # Description Manhours Matl Labor Equipment Sub 0002000000 DEMOLITION, 2X4 FLUORESCENT FIXTURES 145.00 FIXTURE Unit values 0.49 0.00 13.35 0.00 0.00 13.35 Totals 71.05 \$0 \$1,936 \$0 \$0 \$1,936 0002010000 DEMOLITION, INCANDESCENT FIXTURES/EXIT SIGNS 17.00 FIXTURE Unit values 0.00 0.00 0.26 7.10 0.00 7.10 Totals 4.42 \$0 \$121 \$0 \$0 \$121 0002020000 DEMOLITION, 1X4 FLUORESCENT FIXTURES 33.00 FIXTURE 0.00 Unit values 0.49 13.35 0.00 0.00 13.35 Totals 16.17 \$0 \$441 \$0 \$441 \$0 0010100000 2X4 2-32 WATT FLUORESCENT LAMPS, RECESSED MOUNTED 104.00 FIXTURE 100.50 Unit values 1.51 59.00 41.50 0.00 0.00 Totals 157.04 \$6,136 \$4,316 \$0 \$0 \$10,452 1X4 2-32 WATT FLUORESCENT LAMPS, PENDANT 0010400000 MOUNTED 33.00 FIXTURE Unit values 1.14 39.00 31.50 0.00 0.00 70.50 Totals 37.62 \$1,287 \$1,040 \$0 \$0 \$2,327 0010500000 2X4 2-32 WATT FLUORESCENT LAMPS, RECESSED 39.00 FIXTURE MOUNTED WITH REFLECTORS Unit values 1.51 75.00 41.50 0.00 0.00 116.50 Totals \$4,544 58.89 \$2,925 \$1,619 \$0 \$0 0010700000 LED EXIT SIGN, RETROFIT KIT 17.00 FIXTURE Unit values 1.00 35.00 27.50 0.00 0.00 62.50 \$1,063 Totals 17.00 \$595 \$468 \$0 \$0 0011400000 2X4 3-32 WATT FLUORESCENT LAMPS, SURFACE 2.00 FIXTURE MOUNTED WITH REFLECTOR 0.00 120.50 79.00 41.50 0.00 Unit values 1.51 Totals \$0 \$0 \$241 3.02 \$158 \$83

| Line # | Description | | | | | |
|---|---|--------------|----------|-----------|-----|---|
| | Manhours | Matl | Labor | Equipment | Sub | Total |
| U00 | 366 | \$11,101 | \$10,024 | \$0 | \$0 | \$21,125 |
| ESTIMATE TOTAL | 366 | \$11,101 | \$10,024 | \$0 | \$0 | \$21,125 |
| SALES TAX MATL MARKUP LABOR MARKUP EQUIPT MARKUP SUB MARKUP | 5.00% 0.00% 0.00% 0.00% 0.00% | \$555 \$0 | \$0 | \$0 | \$0 | |
| TOTAL BEFORE COCONTINGENCY BOND PROFIT | ONTINGENC 5.00% 5.00% 10.00% | \$11,656 | \$10,024 | \$0 | \$0 | \$21,680 \$1,084 \$1,084 \$2,168 |
| JOB TOTAL | | | | | | \$26,016 |

Estimate: LIGHTING UPGRADE Date: FEBRUARY 2, 1995
Description: LIGHTING PRODUCT UPGRADE
Project: HANGAR LIGHTING Bid Date: FEBRUARY 2, 1995
Location: BLDG 3007 Job #: 94013.04
Sq. footage: City indx:Raleigh, NC

| SUMMARY | | | | | | |
|---|---|--------------|----------|-----------|-----|---|
| | Manhours | Matl | Labor | Equipment | Sub | Total |
| | | | ====== | | | |
| U00 | 366 | \$11,101 | \$10,024 | \$0 | \$0 | \$21,125 |
| TOTAL | 366 | \$11,101 | \$10,024 | \$0 | \$0 | \$21,125 |
| SALES TAX MATL MARKUP LABOR MARKUP EQUIPT MARKUP SUB MARKUP | 5.00% 0.00% 0.00% 0.00% 0.00% | \$555 \$0 | \$0 | \$0 | \$0 | |
| TOTAL BEFORE C CONTINGENCY BOND PROFIT | CONTINGENC 5.00% 5.00% 10.00% | \$11,656 | \$10,024 | \$0 | \$0 | \$21,680 \$1,084 \$1,084 \$2,168 |
| JOB TOTAL | | | | | | \$26,016 |

7 ECOS- 2, 3, & 4 ENERGY CALCULATIONS

LIMITED ENERGY STUDY OF HANGAR FACILITIES AT SIMMONS ARMY AIRFIELD, FT. BRAGG, NC

This section contains the baseline energy calculations and energy calculations for ECOs 2, 3, and 4. The calculations were performed using the DOE Building Simulation program. The DOE program simulates a building's annual energy performance by modeling all energy consuming systems within that building. Heating and cooling loads are calculated on an hourly basis using local weather data. The user inputs criteria such as building envelope materials, lighting and occupant loading, HVAC equipment type and zoning. Details of the user input data and assumptions in the simulations can be found in Section 5.3 of the report. The output from these simulations is contained in this section and is sorted by building. Within each building, the output is sorted in the following order: Baseline, ECO-2, ECO-3, ECO-4.

LCCA AND COST ESTIMATES: (sorted by building)

| 2936 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | 7-2 |
|------|---|---|--|---|--|--|--|--|--|--|---|------|------|--|--|--|--|--|--|--|--|--|---|--|--|------|--|--|---|------|
| 3007 | | | | | | | | | | | | | | | | | | | | | | | ٠ | | | | | | | 7-6 |
| 3262 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | 7-9 |
| 3354 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | 7 | 7-13 |
| 3637 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | 7 | 7-17 |
| 3642 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | 7 | 7-21 |
| 3807 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | - | 7-25 |
| 3954 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 3962 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | 7 | 7-31 |
| 4137 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 4242 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 7937 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 8944 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 9647 | Ī | Ī | | Ī | | | | | | | _ | | | | | | | | | | | | | | | | | | 7 | 7-49 |

2936.SIM

12/2/94

SIMMONS ARMY AIRFIELD

HANGAR 2936

FT BRAGG ENERGY STUDY

BASE CASE

Page 1

PRESENT ENERGY USAGE

DOF-2.1C 11/30/1994 12: 9:39 PDL RUN 1

WEATHER FILE- TMY RALEIGH, NC

RT- BEPS ESTIMATED BUILDING ENERGY PERFORMANCE

| ENERGY TYPE IN SITE MBTU - | ELECTRICITY | FUEL-OIL |
|-------------------------------|-------------|----------|
| CATEGORY OF USE | | |
| SPACE HEAT | 288.05 | 7113.39 |
| SPACE COOL | 643.87 | 0.00 |
| HVAC AUX | 650.92 | 0.00 |
| DOM HOT WTR | 0.00 | 0.00 |
| AUX SOLAR | 0.00 | 0.00 |
| LIGHTS | 1096.88 | 0.00 |
| VERT TRANS | 0.00 | 0.00 |
| MISC EQUIP | 163.37 | 0.00 |
| TOTAL | 2843.08 | 7113.39 |

TOTAL SITE ENERGY 9956.53 MBTU 157.5 KBTU/SQFT-YR GROSS-AREA 157.5 KBTU/SQFT-YR NET-AREA TOTAL SOURCE ENERGY 15651.33 MBTU 247.5 KBTU/SQFT-YR GROSS-AREA 247.5 KBTU/SQFT-YR NET-AREA

PERCENT OF HOURS ANY SYSTEM ZONE OUTSIDE OF THROTTLING RANGE = 41.9 PERCENT OF HOURS ANY PLANT LOAD NOT SATISFIED = 0.2

2936E002.SIN

BANGAR 2936

FT BRAGG ENERGY STUDY

12/2/94

Page 1

SIMMONS ARMY AIRFIELD

ECO-2

DOE-2.1C 11/30/1994 13:56:55 PDL RUN 1

NG BLRS & IR BEAT

WEATHER FILE- THY RALEIGH, NC

RT- BEPS ESTIMATED BUILDING ENERGY PERFORMANCE

| ENERGY TYPE IN SITE MBTU - | ELECTRICITY | NATURAL-GAS |
|-------------------------------|-------------|-------------|
| CATEGORY OF USE | | |
| SPACE HEAT | 173.17 | 3746.78 |
| SPACE COOL | 643.88 | 0.00 |
| HVAC AUX | 634.68 | 0.00 |
| DON HOT WTR | 0.00 | 0.00 |
| AUX SOLAR | 0.00 | 0.00 |
| LIGHTS | 1096.88 | 0.00 |
| VERT TRANS | 0.00 | 0.00 |
| MISC EQUIP | 163.37 | 0.00 |
| TOTAL | 2711.98 | 3746.78 |

TOTAL SITE ENERGY 6458.80 MBTU 102.1 KBTU/SQFT-YR GROSS-AREA 102.1 KBTU/SQFT-YR NET-AREA TOTAL SOURCE ENERGY 11890.99 MBTU 188.1 KBTU/SQPT-YR GROSS-AREA 188.1 KBTU/SQFT-YR NET-AREA

PERCENT OF HOURS ANY SYSTEM ZONE OUTSIDE OF THROTTLING RANGE = 0.0 PERCENT OF HOURS ANY PLANT LOAD NOT SATISFIED = 0.2

2936ECO3.SIM 12 2/94 Page 1

FT BRAGG ENERGY STUDY P1 UGAR 2936

SIMMONS ARMY AIRFIELD ECO-3

ELECTRIC IR HEAT

DOE-2.1C 12/1/1994 13:59:22 PDL RUN 1

WEATHER FILE- TMY RALEIGH, NC

RT- BEPS ESTIMATED BUILDING ENERGY PERFORMANCE

| ENERGY TYPE IN SITE MBTU - | ELECTRICITY | FUEL-OIL |
|-------------------------------|-------------|----------|
| CATEGORY OF USE | | |
| SPACE HEAT | 2035.53 | 205.77 |
| SPACE COOL | 643.88 | 0.00 |
| HVAC AUX | 557.27 | 0.00 |
| DOM HOT WTR | 0.00 | 0.00 |
| AUX SOLAR | 0.00 | 0.00 |
| LIGHTS | 1096.88 | 0.00 |
| VERT TRANS | 0.00 | 0.00 |
| MISC EQUIP | 163.37 | 0.00 |
| TOTAL | 4496.93 | 205.77 |

TOTAL SITE ENERGY 4702.74 MBTU 74.4 KBTU/SQFT-YR GROSS-AREA 74.4 KBTU/SQFT-YR NET-AREA TOTAL SOURCE ENERGY 13710.19 MBTU 216.8 KBTU/SQFT-YR GROSS-AREA 216.8 KBTU/SQFT-YR NET-AREA

PERCENT OF HOURS ANY SYSTEM ZONE OUTSIDE OF THROTTLING RANGE = 20.2 PERCENT OF HOURS ANY PLANT LOAD NOT SATISFIED

2936ECO4.SIN 12/12/94 Page 1

FI BRAGG ENERGY STUDY GAR 2936

SIMMONS ARMY AIRFIELD

ECO-4

REPORT- BEPS ESTIMATED BUILDING ENERGY PERFORMANCE

DOE-2.1C 12/ 8/1994 11:34:24 PDL RUN 1

HVAC RENOVATIONS

WEATHER FILE- THY RALEIGH, NC

| ENERGY TYPE IN SITE MBTU - | ELECTRICITY | FUEL-OIL |
|-------------------------------|-------------|----------|
| CATEGORY OF USE | | |
| SPACE HEAT | 287.90 | 7109.63 |
| SPACE COOL | 488.41 | 0.00 |
| HVAC AUX | 511.10 | 0.00 |
| DOM HOT WTR | 0.00 | 0.00 |
| AUX SOLAR | 0.00 | 0.00 |
| LIGHTS | 1096.88 | 0.00 |
| VERT TRANS | 0.00 | 0.00 |
| HISC EQUIP | 163.37 | 0.00 |
| TOTAL | 2547.67 | 7109.63 |

TOTAL SITE ENERGY 9657.38 HBTU 152.7 KBTU/SQFT-YR GROSS-AREA 152.7 KBTU/SQFT-YR NET-AREA TOTAL SOURCE ENERGY 14760.54 HBTU 233.4 KBTU/SQFT-YR GROSS-AREA 233.4 KBTU/SQFT-YR NET-AREA

PERCENT OF HOURS ANY SYSTEM ZONE OUTSIDE OF THROTTLING RANGE = 41.9 PERCENT OF HOURS ANY PLANT LOAD NOT SATISFIED = 0.1

3007.SIM

12/2/94

SIMMONS ARMY AIRFIELD

HANGAR 3007

FT BRAGG ENERGY STUDY

BASE CASE

Page 1

DOE-2.1C 12/ 2/1994

DOF-2.1C 12/ 2/1994 10:29:57 PDL RUN 1

PRESENT ENERGY USAGE

WEATHER FILE- THY RALEIGH, NC

DRT- BEPS ESTIMATED BUILDING ENERGY PERFORMANCE

| ENERGY TYPE IN SITE MBTU - | ELECTRICITY | FUEL-OIL |
|-------------------------------|-------------|----------|
| CATEGORY OF USE | | |
| SPACE HEAT | 271.56 | 7794.15 |
| SPACE COOL | 184.35 | 0.00 |
| HVAC AUX | 496.89 | 0.00 |
| DOH HOT WTR | 0.00 | 231.98 |
| AUX SOLAR | 0.00 | 0.00 |
| LIGHTS | 1082.79 | 0.00 |
| VERT TRANS | 0.00 | 0.00 |
| MISC EQUIP | 218.58 | 0.00 |
| TOTAL | 2254.17 | 8026.13 |

TOTAL SITE ENERGY 10280.29 MBTU 205.1 KBTU/SQFT-YR GROSS-AREA 205.1 KBTU/SQFT-YR NET-AREA TOTAL SOURCE ENERGY 14795.40 MBTU 295.1 KBTU/SQFT-YR GROSS-AREA 295.1 KBTU/SQFT-YR NET-AREA

PERCENT OF HOURS ANY SYSTEM ZONE OUTSIDE OF THROTTLING RANGE = 69.2
PERCENT OF HOURS ANY PLANT LOAD NOT SATISFIED = 0.0

3007EC02.SIH 12/2/94 FT BRAGG ENERGY STUDY

HANGAR 3007

SIMMONS ARMY AIRFIELD

ECO-2

Page 1

DOF-2.1C 12/ 2/1994 12:17:49 PDL RUN 1

NG BOILERS & INFRA-RED RADIANT HEAT

WEATHER FILE- TMY RALEIGH, NC

DRT- BEPS ESTIMATED BUILDING ENERGY PERFORMANCE

ENERGY TYPE IN SITE MBTU - ELECTRICITY NATURAL-GAS CATEGORY OF USE SPACE HEAT 211.44 4598.27 SPACE COOL 184.35 0.00 HVAC AUX 482.10 0.00 DOM HOT WTR 4.38 81.61 AUX SOLAR 0.00 0.00 LIGHTS 1082.79 0.00 VERT TRANS 0.00 0.00 MISC EQUIP 218.58 0.00 -----TOTAL 2183.64 4679.88

TOTAL SITE ENERGY 6863.52 MBTU 136.9 KBTU/SQFT-YR GROSS-AREA 136.9 KBTU/SQFT-YR NET-AREA

TOTAL SOURCE ENERGY 11237.35 MBTU 224.2 KBTU/SQFT-YR GROSS-AREA 224.2 KBTU/SQFT-YR NET-AREA

PERCENT OF HOURS ANY SYSTEM ZONE OUTSIDE OF THROTTLING RANGE = 63.4 PERCENT OF HOURS ANY PLANT LOAD NOT SATISFIED = 0.0

3007EC03.SIM 12/2/94

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FT BRAGG ENERGY STUDY HANGAR 3007

SIMMONS ARMY AIRFIELD

ECO-3

PRT- BEPS ESTIMATED BUILDING ENERGY PERFORMANCE

DOF-2.1C 12/2/1994 8:50: 8 PDL RUN 1

ELECTRIC IR HEAT

WEATHER FILE- THY RALEIGH, NC

| ENERGY TYPE IN SITE MBTU - | ELECTRICITY | FUEL-OIL |
|----------------------------|-------------|----------|
| CATEGORY OF USE | | |
| SPACE HEAT | 1375.52 | 1278.74 |
| SPACE COOL | 184.35 | 0.00 |
| HVAC AUX | 394.54 | 0.00 |
| DOM HOT WIR | 0.00 | 0.00 |
| AUX SOLAR | 0.00 | 0.00 |
| LIGHTS | 1082.80 | 0.00 |
| VERT TRANS | 0.00 | 0.00 |
| MISC EQUIP | 218.58 | 0.00 |
| TOTAL | 3255.78 | 1278.74 |

TOTAL SOURCE ENERGY 11055.77 MBTU 220.5 KBTU/SQFT-YR GROSS-AREA 220.5 KBTU/SQFT-YR NET-AREA

TOTAL SITE ENERGY 4534.49 MBTU 90.4 KBTU/SQFT-YR GROSS-AREA 90.4 KBTU/SQFT-YR NET-AREA

PERCENT OF HOURS ANY SYSTEM ZONE OUTSIDE OF THROTTLING RANGE = 63.4 PERCENT OF HOURS ANY PLANT LOAD NOT SATISFIED = 0.0

3262.SIM FT BRAGG ENERGY STUDY

HANGAR 3262

12/2/94 Page 1

SIMMONS ARMY AIRFIELD

BASE CASE

DOE-2.1C 11/29/1994 13:46:27 PDL RUN 1 PRESENT ENERGY USAGE

WEATHER FILE- TMY RALEIGH, NC

RT- BEPS ESTIMATED BUILDING ENERGY PERFORMANCE

| ENERGY TYPE IN SITE MBTU - | ELECTRICITY | FUEL-OIL |
|-------------------------------|-------------|----------|
| CATEGORY OF USE | | |
| SPACE HEAT | 192.19 | 11447.33 |
| SPACE COOL | 366.32 | 0.00 |
| HVAC AUX | 671.63 | 0.00 |
| DOM HOT WTR | 0.00 | 0.00 |
| AUX SOLAR | 0.00 | 0.00 |
| LIGHTS | 1096.89 | 0.00 |
| VERT TRANS | 0.00 | 0.00 |
| MISC EQUIP | 185.21 | 0.00 |
| TOTAL | 2512.24 | 11447.33 |

TOTAL SITE ENERGY 13959.52 MBTU 224.1 KBTU/SQFT-YR GROSS-AREA 224.1 KBTU/SQFT-YR NET-AREA TOTAL SOURCE ENERGY 18991.77 MBTU 304.9 KBTU/SQFT-YR GROSS-AREA 304.9 KBTU/SQFT-YR NET-AREA

PERCENT OF HOURS ANY SYSTEM ZONE OUTSIDE OF THROTTLING RANGE = 38.7 PERCENT OF HOURS ANY PLANT LOAD NOT SATISFIED = 24.6

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HANGAR 3262

Page 1

FT BRAGG ENERGY STUDY

SIMMONS ARMY AIRFIELD

ECO-2

ORT- BEPS ESTIMATED BUILDING ENERGY PERFORMANCE

DOE-2.1C 11/30/1994 14:26:39 PDL RUN 1

NG BLRS & IR HEAT

WEATHER FILE- TMY RALEIGH, NC

ENERGY TYPE

IN SITE MBTU - ELECTRICITY NATURAL-GAS

CATEGORY OF USE

| ATEGORY OF USE | | |
|----------------|---------|---------|
| SPACE HEAT | 192.19 | 9128.09 |
| SPACE COOL | 366.32 | 0.00 |
| HVAC AUX | 597.94 | 0.00 |
| DOM HOT WTR | 0.00 | 0.00 |
| AUX SOLAR | 0.00 | 0.00 |
| LIGHTS | 1096.90 | 0.00 |
| VERT TRANS | 0.00 | 0.00 |
| MISC EQUIP | 185.21 | 0.00 |
| | | |

TOTAL 2438.57 9128.09

TOTAL SITE ENERGY 11566.79 MBTU 185.7 KBTU/SQFT-YR GROSS-AREA 185.7 KBTU/SQFT-YR NET-AREA TOTAL SOURCE ENERGY 16451.44 MBTU 264.2 KBTU/SQFT-YR GROSS-AREA 264.2 KBTU/SQFT-YR NET-AREA

PERCENT OF HOURS ANY SYSTEM ZONE OUTSIDE OF THROTTLING RANGE = 11.9 PERCENT OF HOURS ANY PLANT LOAD NOT SATISFIED = 13.2

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Page 1

FT BRAGG ENERGY STUDY

SIMMONS ARMY AIRFIELD

ECO-3

ELECTRIC IR HEAT

DOF-2.1C 12/ 1/1994 14:23:31 PDL RUN 1

DRT- BEPS ESTIMATED BUILDING ENERGY PERFORMANCE

WEATHER FILE- TMY RALEIGH, NC

| ENERGY TYPE IN SITE MBTU - | ELECTRICITY | FUEL-OIL |
|-------------------------------|-------------|----------|
| CATEGORY OF USE | | |
| SPACE HEAT | 3384.29 | 4542.27 |
| SPACE COOL | 366.32 | 0.00 |
| HVAC AUX | 447.43 | 0.00 |
| DOM HOT WTR | 0.00 | 0.00 |
| AUX SOLAR | 0.00 | 0.00 |
| LIGHTS | 1096.89 | 0.00 |
| VERT TRANS | 0.00 | 0.00 |
| MISC EQUIP | 185.21 | 0.00 |
| TOTAL | 5480.14 | 4542.27 |

TOTAL SITE ENERGY 10022.43 MBTU 160.9 KBTU/SQFT-YR GROSS-AREA 160.9 KBTU/SQFT-YR NET-AREA

TOTAL SOURCE ENERGY 20999.23 MBTU 337.2 KBTU/SQFT-YR GROSS-AREA 337.2 KBTU/SQFT-YR NET-AREA

PERCENT OF HOURS ANY SYSTEM ZONE OUTSIDE OF THROTTLING RANGE = 37.4 PERCENT OF HOURS ANY PLANT LOAD NOT SATISFIED = 0.0

3262ECO4.SIM 12/12/94

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FT BRAGG ENERGY STUDY SIMHONS ARMY AIRFIELD

ECO-4

REPORT- BEPS ESTIMATED BUILDING ENERGY PERFORMANCE

DOE-2.1C 12/8/1994 13:47: 9 PDL RUN 1 VAV RETROFIT

WEATHER FILE- TMY RALEIGH, NC

| ENERGY TYPE IN SITE MBTU - | ELECTRICITY | FUEL-OIL |
|-------------------------------|-------------|----------|
| CATEGORY OF USE | | |
| SPACE HEAT | 189.66 | 9387.93 |
| SPACE COOL | 508.57 | 0.00 |
| HVAC AUX | 754.43 | 0.00 |
| DOM HOT WTR | 0.00 | 0.00 |
| AUX SOLAR | 0.00 | 0.00 |
| LIGHTS | 1096.89 | 0.00 |
| VERT TRANS | 0.00 | 0.00 |
| MISC EQUIP | 185.21 | 0.00 |
| TOTAL | 2734.76 | 9387.93 |

TOTAL SITE ENERGY 12122.82 MBTU 194.7 KBTU/SQFT-YR GROSS-AREA 194.7 KBTU/SQFT-YR NET-AREA TOTAL SOURCE ENERGY 17600.77 MBTU 282.6 KBTU/SQFT-YR GROSS-AREA 282.6 KBTU/SQFT-YR NET-AREA

PERCENT OF HOURS ANY SYSTEM ZONE OUTSIDE OF THROTTLING RANGE = 37.4 PERCENT OF HOURS ANY PLANT LOAD NOT SATISFIED = 10.4

3354.SIN

12.2.94

Page 1

FT BRAGG ENERGY STUDY HANGAR 3354

SIMMONS ARMY AIRFIELD

BASE CASE

DOF-2.1C 11 14 1994 15:48:24 PDL RUN 1 PRESENT ENERGY USAGE

WEATHER FILE- TMY RALEIGH, NC

ORT- BEPS ESTIMATED BUILDING ENERGY PERFORMANCE

| ENERGY TYPE IN SITE MBTU - | ELECTRICITY | FUEL-OIL |
|-------------------------------|-------------|----------|
| CATEGORY OF USE | | |
| SPACE HEAT | 312.76 | 4593.35 |
| SPACE COOL | 224.21 | 0.00 |
| HVAC AUX | 83.28 | 0.00 |
| DOM HOT WTR | 0.00 | 0.00 |
| AUX SOLAR | 0.00 | 0.00 |
| LIGHTS | 572.26 | 0.00 |
| VERT TRANS | 0.00 | 0.00 |
| MISC EQUIP | 111.01 | 0.00 |
| TOTAL | 1303.52 | 4593.35 |
| | | |

TOTAL SITE ENERGY 5896.84 MBTU 177.8 KBTU/SQFT-YR GROSS-AREA 177.8 KBTU/SQFT-YR NET-AREA

TOTAL SOURCE ENERGY 8507.73 HBTU 256.6 KBTU/SQFT-YR GROSS-AREA 256.6 KBTU/SQFT-YR NET-AREA

PERCENT OF HOURS ANY SYSTEM ZONE OUTSIDE OF THROTTLING RANGE = 14.9 PERCENT OF HOURS ANY PLANT LOAD NOT SATISFIED

3354ECO2.SIN 12/2/94 FT BRAGG ENERGY STUDY

Page 1

SIMMONS ARMY AIRFIELD

HANGAR 3354

ECO-2

PRT- BEPS ESTIMATED BUILDING ENERGY PERFORMANCE

DOE-2.1C 11/30/1994 14:56:49 PDL RUN 1 N G BLRS & IR HEAT

WEATHER FILE- TMY RALEIGH, NC

| ENERGY TYPE IN SITE MBTU - | ELECTRICITY | NATURAL-GAS |
|-------------------------------|-------------|-------------|
| CATEGORY OF USE | | |
| SPACE HEAT | 419.17 | 2865.93 |
| SPACE COOL | 224.21 | 0.00 |
| HVAC AUX | 80.35 | 0.00 |
| DOM HOT WTR | 0.00 | 0.00 |
| AUX SOLAR | 0.00 | 0.00 |
| LIGHTS | 572.26 | 0.00 |
| VERT TRANS | 0.00 | 0.00 |
| MISC EQUIP | 111.01 | 0.00 |
| TOTAL | 1407.01 | 2865.93 |

TOTAL SOURCE ENERGY 7091.07 MBTU 213.8 KBTU/SQFT-YR GROSS-AREA

TOTAL SITE ENERGY 4272.90 MBTU 128.9 KBTU/SQFT-YR GROSS-AREA 128.9 KBTU/SQFT-YR NET-AREA 213.8 KBTU/SQFT-YR NET-AREA

PERCENT OF HOURS ANY SYSTEM ZONE OUTSIDE OF THROTTLING RANGE = 7.8 PERCENT OF HOURS ANY PLANT LOAD NOT SATISFIED = 0.0

3354ECO3.SIN 12/2/94

HANGAR 3354

Page 1

FT BRAGG ENERGY STUDY

SIMMONS ARMY AIRFIELD

ECO-3

ORT- BEPS ESTIMATED BUILDING ENERGY PERFORMANCE

DOE-2.1C 12/ 1/1994 15:12:58 PDL RUN 1

ELECTRIC IR HEAT

WEATHER FILE- TMY RALEIGH, NC

| ENERGY TYPE IN SITE MBTU - | ELECTRICITY | FUEL-OIL |
|-------------------------------|-------------|----------|
| CATEGORY OF USE | | |
| SPACE HEAT | 797.95 | 1766.66 |
| SPACE COOL | 224.21 | 0.00 |
| HVAC AUX | 41.89 | 0.00 |
| DOM HOT WIR | 0.00 | 0.00 |
| AUY SOLAR | 0.00 | 0.00 |
| LIGHTS | 572.26 | 0.00 |
| VERT TRANS | 0.00 | 0.00 |
| MISC EQUIP | 111.01 | 0.00 |
| TOTAL | 1747.32 | 1766.66 |

TOTAL SITE ENERGY 3513.95 MBTU 106.0 KBTU/SQFT-YR GROSS-AREA 106.0 KBTU/SQFT-YR NET-AREA TOTAL SOURCE ENERGY 7013.78 MBTU 211.5 KBTU/SQFT-YR GROSS-AREA 211.5 KBTU/SQFT-YR NET-AREA

PERCENT OF HOURS ANY SYSTEM ZONE OUTSIDE OF THROTTLING RANGE = 7.8 PERCENT OF HOURS ANY PLANT LOAD NOT SATISFIED = 0.0

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FT BRAGG ENERGY STUDY SIMMONS ARMY AIRFIELD

HANGAR 3354

DOE-2.1C 12/ 8/1994 15:54:34 PDL RUN 1

FAN COILS

WEATHER FILE- THY RALEIGH, NC

PORT- BEPS ESTIMATED BUILDING ENERGY PERFORMANCE

| ENERGY TYPE IN SITE MBTU - | ELECTRICITY | FUEL-OIL |
|-------------------------------|-------------|----------|
| CATEGORY OF USE | | |
| SPACE HEAT | 176.96 | 4849.53 |
| SPACE COOL | 121.67 | 0.00 |
| HVAC AUX | 107.51 | 0.00 |
| DOM HOT WTR | 0.00 | 0.00 |
| AUX SOLAR | 0.00 | 0.00 |
| LIGHTS | 572.27 | 0.00 |
| VERT TRANS | 0.00 | 0.00 |
| MISC EQUIP | 111.01 | 0.00 |
| TOTAL | 1089.42 | 4849.53 |

TOTAL SITE ENERGY 5938.91 MBTU 179.1 KBTU/SQFT-YR GROSS-AREA 179.1 KBTU/SQFT-YR NET-AREA

TOTAL SOURCE ENERGY 8120.93 MBTU 244.9 KBTU/SQFT-YR GROSS-AREA 244.9 KBTU/SQFT-YR NET-AREA

PERCENT OF HOURS ANY SYSTEM ZONE OUTSIDE OF THROTTLING RANGE = 14.8 PERCENT OF HOURS ANY PLANT LOAD NOT SATISFIED

3637.SIM

HANGAR 3637

12/1/94

Page 1

FT BRAGG ENERGY STUDY

SIMMONS ARMY AIRFIELD

BASE CASE

ORT- BEPS ESTIMATED BUILDING ENERGY PERFORMANCE

DOE-2.1C 12: 1/1994 12:30:50 PDL RUN 1

PRESENT ENERGY USAGE

WEATHER FILE- TMY RALEIGH, NC

| ENERGY TYPE IN SITE MBTU - | ELECTRICITY | FUEL-OIL |
|-------------------------------|-------------|----------|
| CATEGORY OF USE | | |
| SPACE HEAT | 158.60 | 3567.65 |
| SPACE COOL | 96.80 | 0.00 |
| HVAC AUX | 60.15 | 0.00 |
| DOM HOT WTR | 0.00 | 0.00 |
| AUX SOLAR | 0.00 | 0.00 |
| LIGHTS | 357.33 | 0.00 |
| VERT TRANS | 0.00 | 0.00 |
| MISC EQUIP | 264.61 | 0.00 |
| TOTAL. | 027 50 | 25/7 /5 |
| TOTAL | 937.50 | 3567.65 |

TOTAL SITE ENERGY 4505.13 MBTU 240.3 KBTU/SQFT-YR GROSS-AREA 240.3 KBTU/SQFT-YR NET-AREA TOTAL SOURCE ENERGY 6382.91 MBTU 340.4 KBTU/SQFT-YR GROSS-AREA 340.4 KBTU/SQFT-YR NET-AREA

PERCENT OF HOURS ANY SYSTEM ZONE OUTSIDE OF THROTTLING RANGE = 97.3 PERCENT OF HOURS ANY PLANT LOAD NOT SATISFIED = 0.0

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HANGAR 3637

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FT BRAGG ENERGY STUDY

SIMMONS ARMY AIRFIELD

ECO-2

ORT- BEPS ESTIMATED BUILDING ENERGY PERFORMANCE

DOE-2.1C 12/ 12/2.

NG BOILERS & INFRA-RED RADIANT HEAT

TOTALE THY RALE DOE-2.1C 12/1/1994 12:51:18 PDL RUN 1

WEATHER FILE- THY RALEIGH, NC

| ENERGY TYPE IN SITE MBTU - | ELECTRICITY | NATURAL-GAS |
|-------------------------------|-------------|-------------|
| CATEGORY OF USE | | |
| SPACE HEAT | 111.85 | 1959.77 |
| SPACE COOL | 66.41 | 0.00 |
| HVAC AUX | 45.22 | 0.00 |
| DOM HOT WTR | 0.00 | 0.00 |
| AUX SOLAR | 0.00 | 0.00 |
| LIGHTS | 357.33 | 0.00 |
| VERT TRANS | 0.00 | 0.00 |
| MISC EQUIP | 264.61 | 0.00 |
| TOTAL | 845.42 | 1959.77 |

TOTAL SITE ENERGY 2907.91 HBTU 155.1 KBTU/SQFT-YR GROSS-AREA 155.1 KBTU/SQFT-YR NET-AREA TOTAL SOURCE ENERGY 4807.03 MBTU 256.4 KBTU/SQFT-YR GROSS-AREA 256.4 KBTU/SQFT-YR NET-AREA

PERCENT OF HOURS ANY SYSTEM ZONE OUTSIDE OF THROTTLING RANGE = 97.3 PERCENT OF HOURS ANY PLANT LOAD NOT SATISFIED = 0.0

3637ECO3.SIM

HANGAR 3637

12/2/94

Page 1

FI BRAGG ENERGY STUDY

SIMMONS ARMY AIRFIELD

ECO-3

RT- BEPS ESTIMATED BUILDING ENERGY PERFORMANCE

DOF-2.1C 12/2/1994 10:22:55 PDL RUN 1

ELECTRIC IR HEAT

WEATHER FILE- THY RALEIGH, NC

| ENERGY TYPE IN SITE MBTU - | ELECTRICITY | FUEL-OIL |
|-------------------------------|-------------|----------|
| CATEGORY OF USE | | |
| SPACE HEAT | 622.87 | 553.78 |
| SPACE COOL | 88.97 | 0.00 |
| HVAC AUX | 11.14 | 0.00 |
| DON HOT WTR | 0.00 | 0.00 |
| AUX SOLAR | 0.00 | 0.00 |
| LIGHTS | 357.33 | 0.00 |
| VERT TRANS | 0.00 | 0.00 |
| MISC EQUIP | 264.61 | 0.00 |
| TOTAL | 1344.92 | 553.78 |

TOTAL SITE ENERGY 1898.70 MBTU 101.3 KBTU/SQFT-YR GROSS-AREA 101.3 KBTU/SQFT-YR NET-AREA

TOTAL SOURCE ENERGY 4592.57 MBTU 245.0 KBTU/SQFT-YR GROSS-AREA 245.0 KBTU/SQFT-YR NET-AREA

PERCENT OF HOURS ANY SYSTEM ZONE OUTSIDE OF THROTTLING RANGE = 97.3 PERCENT OF HOURS ANY PLANT LOAD NOT SATISFIED = 0.0

3637ECO4.SIM 12/12/94 Page 1
FT BRAGG ENERGY STUDY SIMMONS ARMY AIRFIELD

HANGAR 3637

DOE-2.1C 12'12'1994 10: 2: 0 PDL RUN 1

HVAC RENOVATIONS

WEATHER FILE- TMY RALEIGH, NC

ORT- BEPS ESTIMATED BUILDING ENERGY PERFORMANCE

| ENERGY TYPE IN SITE MBTU - | ELECTRICITY | FUEL-OIL |
|-------------------------------|-------------|----------|
| CATEGORY OF USE | | |
| SPACE HEAT | 147.82 | 3132.05 |
| SPACE COOL | 170.92 | 0.00 |
| HVAC AUX | 202.94 | 0.00 |
| DOM HOT WTR | 0.00 | 0.00 |
| AUX SOLAR | 0.00 | 0.00 |
| LIGHTS | 357.33 | 0.00 |
| VERT TRANS | 0.00 | 0.00 |
| MISC EQUIP | 264.61 | 0.00 |
| TOTAL | 1143.62 | 3132.05 |

TOTAL SITE ENERGY 4275.65 MBTU 228.0 KBTU/SQFT-YR GROSS-AREA 228.0 KBTU/SQFT-YR NET-AREA TOTAL SOURCE ENERGY 6566.31 MBTU 350.2 KBTU/SQFT-YR GROSS-AREA 350.2 KBTU/SQFT-YR NET-AREA

PERCENT OF HOURS ANY SYSTEM ZONE OUTSIDE OF THROTTLING RANGE = 97.3 PERCENT OF HOURS ANY PLANT LOAD NOT SATISFIED = 0.0

3642.SIM

12,2 94

Page 1

FT BRAGG ENERGY STUDY HANGAR 3642

SIMMONS ARMY AIRFIELD

BASE CASE

DRI- BEPS ESTIMATED BUILDING ENERGY PERFORMANCE

DOE-2.1C 11 14'1994 13:52:44 PDL RUN 1

PRESENT ENERGY USAGE

WEATHER FILE- TMY RALEIGH, NC

| ENERGY TYPE IN SITE MBTU - | ELECTRICITY | FUEL-OIL |
|-------------------------------|-------------|----------|
| CATEGORY OF USE | | |
| SPACE HEAT | 277.43 | 5031.04 |
| SPACE COOL | 223.90 | 0.00 |
| HVAC AUX | 79.12 | 0.00 |
| DOM HOT WTR | 0.00 | 0.00 |
| AUX SOLAR | 0.00 | 0.00 |
| LIGHTS | 590.91 | 0.00 |
| VERT TRANS | 0.00 | 0.00 |
| MISC EQUIP | 113.89 | 0.00 |
| TOTAL | 1285.25 | 5031.04 |

TOTAL SITE ENERGY 6316.26 MBTU 190.5 KBTU/SQFT-YR GROSS-AREA 190.5 KBTU/SQFT-YR NET-AREA

TOTAL SOURCE ENERGY 8890.57 MBTU 268.1 KBTU/SQFT-YR GROSS-AREA 268.1 KBTU/SQFT-YR NET-AREA

PERCENT OF HOURS ANY SYSTEM ZONE OUTSIDE OF THROTTLING RANGE = 35.3 PERCENT OF HOURS ANY PLANT LOAD NOT SATISFIED

3642ECO2.SIN 12/2/94

HANGAR 3642

Page 1

FI BRAGG ENERGY STUDY

SIMMONS ARMY AIRFIELD

ECO-2

DOE-2.1C 11 N G BLRS & IR HEAT

DOE-2.1C 11/30/1994 15:15: 6 PDL RUN 1

RT- BEPS ESTIMATED BUILDING ENERGY PERFORMANCE

WEATHER FILE- TMY RALEIGH, NC

| ENERGY TYPE IN SITE MBTU - | ELECTRICITY | NATURAL-GAS |
|-------------------------------|-------------|-------------|
| CATEGORY OF USE | | |
| SPACE HEAT | 250.36 | 3475.99 |
| SPACE COOL | 223.90 | 0.00 |
| HVAC AUX | 84.10 | 0.00 |
| DOM HOT WTR | 0.00 | 0.00 |
| AUX SOLAR | 0.00 | 0.00 |
| LIGHTS | 590.91 | 0.00 |
| VERT TRANS | 0.00 | 0.00 |
| HISC EQUIP | 113.89 | 0.00 |
| TOTAL | 1263.16 | 3475.99 |

TOTAL SITE ENERGY 4739.13 MBTU 142.9 KBTU/SQFT-YR GROSS-AREA 142.9 KBTU/SQFT-YR NET-AREA

TOTAL SOURCE ENERGY 7269.20 MBTU 219.2 KBTU/SQFT-YR GROSS-AREA 219.2 KBTU/SQFT-YR NET-AREA

PERCENT OF HOURS ANY SYSTEM ZONE OUTSIDE OF THROTTLING RANGE = 4.8 PERCENT OF HOURS ANY PLANT LOAD NOT SATISFIED

3642ECO3.SIN 12 2/94 Page 1

HANGAR 3642

FT BRAGG ENERGY STUDY

SIMMONS ARMY AIRFIELD

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ORT- BEPS ESTIMATED BUILDING ENERGY PERFORMANCE

DOE-2.1C 12/1 1994 15:28:32 PDL RUN 1

ELECTRIC IR HEAT

WEATHER FILE- TMY RALEIGH, NC

| ENERGY TYPE IN SITE MBTU - | ELECTRICITY | FUEL-OIL |
|-------------------------------|-------------|----------|
| CATEGORY OF USE | | |
| SPACE HEAT | 1040.49 | 1547.21 |
| SPACE COOL | 223.90 | 0.00 |
| HVAC AUX | 32.46 | 0.00 |
| DOM HOT WTR | 0.00 | 0.00 |
| AUX SOLAR | 0.00 | 0.00 |
| LIGHTS | 590.92 | 0.00 |
| VERT TRANS | 0.00 | 0.00 |
| MISC EQUIP | 113.89 | 0.00 |
| TOTAL | 2001.66 | 1547.21 |

TOTAL SITE ENERGY 3548.84 MBTU 107.0 KBTU/SQFT-YR GROSS-AREA 107.0 KBTU/SQFT-YR NET-AREA TOTAL SOURCE ENERGY 7558.10 MBTU 227.9 KBTU/SQFT-YR GROSS-AREA 227.9 KBTU/SQFT-YR NET-AREA

PERCENT OF HOURS ANY SYSTEM ZONE OUTSIDE OF THROTTLING RANGE = 24.9 PERCENT OF HOURS ANY PLANT LOAD NOT SATISFIED

3642ECO4.SIM 12/12/94 Page 1
FT BRAGG ENERGY STUDY SIMMONS ARMY AIRFIELD
HANGAR 3642 ECC-4

HVAC RENOVATIONS

DOE-2.1C 12/12/1994 8:46:19 PDL RUN 1

WEATHER FILE- TMY RALEIGH, NC

ORT- BEPS ESTINATED BUILDING ENERGY PERFORMANCE

| ENERGY TYPE IN SITE MBTU - | ELECTRICITY | FUEL-OIL |
|-------------------------------|-------------|----------|
| CATEGORY OF USE | | |
| SPACE HEAT | 180.12 | 5244.23 |
| SPACE COOL | 122.07 | 0.00 |
| HVAC AUX | 109.31 | 0.00 |
| DON HOT WTR | 0.00 | 0.00 |
| AUX SOLAR | 0.00 | 0.00 |
| LIGHTS | 590.92 | 0.00 |
| VERT TRANS | 0.00 | 0.00 |
| MISC EQUIP | 113.89 | 0.00 |
| TOTAL | 1116.31 | 5244.23 |

TOTAL SITE ENERGY 6360.52 MBTU 191.8 KBTU/SQFT-YR GROSS-AREA 191.8 KBTU/SQFT-YR NET-AREA

TOTAL SOURCE ENERGY 8596.43 MBTU 259.2 KBTU/SQFT-YR GROSS-AREA 259.2 KBTU/SQFT-YR NET-AREA

PERCENT OF HOURS ANY SYSTEM ZONE OUTSIDE OF THROTTLING RANGE = 35.3 PERCENT OF HOURS ANY PLANT LOAD NOT SATISFIED = 0.0

3807.SIM

12/2.94

Page 1

FT BRAGG ENERGY STUDY HANGAR 3807

SIMMONS ARMY AIRFIELD

BASE CASE

PRESENT ENERGY USAGE

DOF-2.1C 12/2/1994 10:50:13 PDL RUN 1

PORT- BEPS ESTIMATED BUILDING ENERGY PERFORMANCE

WEATHER FILE- TMY RALEIGH, NC

| ENERGY TYPE IN SITE MBTU - | ELECTRICITY | FUEL-OIL |
|-------------------------------|-------------|----------|
| CATEGORY OF USE | | |
| SPACE HEAT | 273.34 | 7961.02 |
| SPACE COOL | 0.00 | 0.00 |
| HVAC AUX | 556.73 | 0.00 |
| DOM HOT WTR | 0.00 | 231.98 |
| AUX SOLAR | 0.00 | 0.00 |
| LIGHTS | 1132.43 | 0.00 |
| VERT TRANS | 0.00 | 0.00 |
| HISC EQUIP | 178.32 | 0.00 |
| TOTAL | 2140.83 | 8192.99 |

TOTAL SITE ENERGY 10333.85 MBTU 197.3 KBTU/SQFT-YR GROSS-AREA 197.3 KBTU/SQFT-YR NET-AREA TOTAL SOURCE ENERGY 14621.99 MBTU 279.2 KBTU/SQFT-YR GROSS-AREA 279.2 KBTU/SQFT-YR NET-AREA

PERCENT OF HOURS ANY SYSTEM ZONE OUTSIDE OF THROTTLING RANGE = 78.6 PERCENT OF HOURS ANY PLANT LOAD NOT SATISFIED = 0.0

3807ECO2.SIH 12/2/94

HANGAR 3807

FT BRAGG ENERGY STUDY

SIMMONS ARMY AIRFIELD

ECO-2

Page 1

PORT- BEPS ESTIMATED BUILDING ENERGY PERFORMANCE

DOF-2.1C 12/2/1994 12:53: 7 PDL RUN 1 NG BOILERS & INFRA-RED RADIANT HEAT

WEATHER FILE- THY RALEIGH, NC

| ENERGY TYPE IN SITE MBTU - | ELECTRICITY | NATURAL-GAS |
|-------------------------------|-------------|-------------|
| CATEGORY OF USE | | |
| SPACE HEAT | 217.80 | 4825.14 |
| SPACE COOL | 0.00 | 0.00 |
| HVAC AUX | 543.14 | 0.00 |
| DOM HOT WTR | 4.36 | 81.51 |
| AUX SOLAR | 0.00 | 0.00 |
| LIGHTS | 1132.41 | 0.00 |
| VERT TRANS | 0.00 | 0.00 |
| MISC EQUIP | 178.32 | 0.00 |
| TOTAL | 2076.03 | 4906.65 |

TOTAL SITE ENERGY 6982.74 MBTU 133.3 KBTU/SQFT-YR GROSS-AREA

133.3 KBTU/SQFT-YR NET-AREA TOTAL SOURCE ENERGY 11141.16 MBTU 212.7 KBTU/SQFT-YR GROSS-AREA 212.7 KBTU/SQFT-YR NET-AREA

PERCENT OF HOURS ANY SYSTEM ZONE OUTSIDE OF THROTTLING RANGE = 49.5 PERCENT OF HOURS ANY PLANT LOAD NOT SATISFIED

3807ECO3.SIM 12/2/94

HANGAR 3807

PORT- BEPS ESTIMATED BUILDING ENERGY PERFORMANCE

Page 1

FT BRAGG ENERGY STUDY

SIMMONS ARMY AIRFIELD

ECO-3

DOF-2.1C 12/ 2 1994 14:57:36 PDL RUN 1

ELECTRIC IR HEAT

WEATHER FILE- TMY RALEIGH, NC

ENERGY TYPE

IN SITE MBTU - ELECTRICITY FUEL-OIL

CATEGORY OF USE

| SPACE HEAT | 1360.14 | 1313.07 |
|-------------|---------|---------|
| SPACE COOL | 0.00 | 0.00 |
| HVAC AUX | 452.23 | 0.00 |
| DOM HOT WTR | 0.00 | 231.98 |
| AUX SOLAR | 0.00 | 0.00 |
| LIGHTS | 1132.43 | 0.00 |
| VERT TRANS | 0.00 | 0.00 |
| MISC EQUIP | 178.32 | 0.00 |
| TOTAL | 3123.13 | 1545.04 |

TOTAL SITE ENERGY 4668.21 MBTU 89.1 KBTU/SQFT-YR GROSS-AREA 89.1 KBTU/SQFT-YR NET-AREA TOTAL SOURCE ENERGY 10923.93 MBTU 208.6 KBTU/SQFT-YR GROSS-AREA 208.6 KBTU/SQFT-YR NET-AREA

PERCENT OF HOURS ANY SYSTEM ZONE OUTSIDE OF THROTTLING RANGE = 81.8 PERCENT OF HOURS ANY PLANT LOAD NOT SATISFIED = 0.0

3954.SIN FT BRAGG ENERGY STUDY

HANGAR 3954

12/2/94 Page 1

SIMMONS ARMY AIRFIELD

BASE CASE

DOE-2.1C 11/11/1994 15:14:17 PDL RUN 1

PRESENT ENERGY USAGE

WEATHER FILE- THY RALEIGH, NO

PORT- BEPS ESTIMATED BUILDING ENERGY PERFORMANCE

| ENERGY TYPE IN SITE MBTU - | ELECTRICITY | FUEL-OIL |
|----------------------------|-------------|----------|
| CATEGORY OF USE | | |
| SPACE HEAT | 159.80 | 3599.33 |
| SPACE COOL | 187.44 | 0.00 |
| HVAC AUX | 80.22 | 0.00 |
| DOM HOT WTR | 0.00 | 0.00 |
| AUX SOLAR | 0.00 | 0.00 |
| LIGHTS | 634.62 | 0.00 |
| VERT TRANS | 0.00 | 0.00 |
| MISC EQUIP | 188.68 | 0.00 |
| TOTAL | 1250.76 | 3599.33 |

TOTAL SITE ENERGY 4850.10 MBTU 141.1 KBTU/SQFT-YR GROSS-AREA 141.1 KBTU/SQFT-YR NET-AREA TOTAL SOURCE ENERGY 7355.39 MBTU 214.0 KBTU/SQFT-YR GROSS-AREA 214.0 KBTU/SQFT-YR NET-AREA

PERCENT OF HOURS ANY SYSTEM ZONE OUTSIDE OF THROTTLING RANGE = 14.8 PERCENT OF HOURS ANY PLANT LOAD NOT SATISFIED = 0.0

3954ECO2.SIM 12 2/94 Page 1

HANGAR 3954

FT BRAGG ENERGY STUDY

SIMMONS ARMY AIRFIELD

ECO-2

PORT- BEPS ESTIMATED BUILDING ENERGY PERFORMANCE

DOF-2.1C 11 N G BLRS & IR HEAT DOE-2.1C 11 30 1994 15:48:17 PDL RUN 1

WEATHER FILE- THY RALEIGH, NC

| ENERGY TYPE IN SITE MBTU - | ELECTRICITY | NATURAL-GAS |
|-------------------------------|-------------|-------------|
| CATEGORY OF USE | | |
| SPACE HEAT | 109.31 | 2096.87 |
| SPACE COOL | 187.44 | 0.00 |
| HVAC AUX | 81.23 | 0.00 |
| DOM HOT WTR | 0.00 | 0.00 |
| AUX SOLAR | 0.00 | 0.00 |
| LIGHTS | 634.62 | 0.00 |
| VERT TRANS | 0.00 | 0.00 |
| MISC EQUIP | 188.68 | 0.00 |
| | | |

TOTAL SITE ENERGY 3298.16 MBTU 95.9 KBTU/SQFT-YR GROSS-AREA 95.9 KBTU/SQFT-YR NET-AREA

TOTAL SOURCE ENERGY 5704.33 MBTU 165.9 KBTU/SQFT-YR GROSS-AREA 165.9 KBTU/SQFT-YR NET-AREA

PERCENT OF HOURS ANY SYSTEM ZONE OUTSIDE OF THROTTLING RANGE = 0.0 PERCENT OF HOURS ANY PLANT LOAD NOT SATISFIED = 0.0

TOTAL 1201.28 2096.87

3954EC03.SIN 12 2 '94

Page 1

FT BRAGG ENERGY STUDY HANGAR 3954

SIMMONS ARMY AIRFIELD

ECO-3

ORT- BEPS ESTIMATED BUILDING ENERGY PERFORMANCE

ELECTRIC IR HEAT
WEATH DOE-2.1C 12/1/1994 16: 2:10 PDL RUN 1

WEATHER FILE- TMY RALEIGH, NC

| ENERGY TYPE IN SITE MBTU - | ELECTRICITY | FUEL-OIL |
|-------------------------------|-------------|----------|
| CATEGORY OF USE | | |
| SPACE HEAT | 591.75 | 528.32 |
| SPACE COOL | 187.44 | 0.00 |
| HVAC AUX | 39.11 | 0.00 |
| DOM HOT WTR | 0.00 | 0.00 |
| AUX SOLAR | 0.00 | 0.00 |
| LIGHTS | 634.62 | 0.00 |
| VERT TRANS | 0.00 | 0.00 |
| MISC EQUIP | 188.68 | 0.00 |
| TOTAL | 1641.60 | 528.32 |

TOTAL SITE ENERGY 2169.94 MBTU 63.1 KBTU/SQFT-YR GROSS-AREA 63.1 KBTU/SQFT-YR NET-AREA

TOTAL SOURCE ENERGY 5458.11 MBTU 158.8 KBTU/SQFT-YR GROSS-AREA 158.8 KBTU/SQFT-YR NET-AREA

PERCENT OF HOURS ANY SYSTEM ZONE OUTSIDE OF THROTTLING RANGE = 0.7 PERCENT OF HOURS ANY PLANT LOAD NOT SATISFIED = 0.0

3962.SIM

12 2/94

Page 1

FT BRAGG ENERGY STUDY HANGAR 3962

SIMMONS ARMY AIRFIELD

BASE CASE

ORT- BEPS ESTIMATED BUILDING ENERGY PERFORMANCE

DOF-2.1C 11 16 1994 12:28:35 PDL RUN 1

PRESENT ENERGY USAGE

WEATHER FILE- THY RALEIGH, NC

| ENERGY TYPE IN SITE MBTU - | ELECTRICITY | FUEL-OIL |
|-------------------------------|-------------|----------|
| CATEGORY OF USE | | |
| SPACE HEAT | 238.10 | 4941.79 |
| SPACE COOL | 204.36 | 0.00 |
| HVAC AUX | 71.70 | 0.00 |
| DOM HOT WTR | 0.00 | 0.00 |
| AUX SOLAR | 0.00 | 0.00 |
| LIGHTS | 607.47 | 0.00 |
| VERT TRANS | 0.00 | 0.00 |
| MISC EQUIP | 109.29 | 0.00 |
| TOTAL | 1230.92 | 4941.79 |

TOTAL SITE ENERGY 6172.69 MBTU 186.1 KBTU/SQFT-YR GROSS-AREA 186.1 KBTU/SQFT-YR NET-AREA TOTAL SOURCE ENERGY 8638.19 MBTU 260.5 KBTU/SQFT-YR GROSS-AREA 260.5 KBTU/SQFT-YR NET-AREA

PERCENT OF HOURS ANY SYSTEM ZONE OUTSIDE OF THROTTLING RANGE = 16.7 PERCENT OF HOURS ANY PLANT LOAD NOT SATISFIED

3962ECO2.SIM 12/2/94 Page 1

FT BRAGG ENERGY STUDY HANGAR 3962

SIMMONS ARMY AIRFIELD

ECO-2

PRT- BEPS ESTIMATED BUILDING ENERGY PERFORMANCE

DOF-2.1C 11/30/1994 16: 8:23 PDL RUN 1 N G BLRS & IR HEAT

WEATHER FILE- THY RALEIGH, NO

| ENERGY TYPE IN SITE MBTU - | ELECTRICITY | NATURAL-GAS |
|-------------------------------|-------------|-------------|
| CATEGORY OF USE | | |
| SPACE HEAT | 207.40 | 3338.74 |
| SPACE COOL | 204.36 | 0.00 |
| HVAC AUX | 74.77 | 0.00 |
| DOM HOT WTR | 0.00 | 0.00 |
| AUX SOLAR | 0.00 | 0.00 |
| LIGHTS | 607.47 | 0.00 |
| VERT TRANS | 0.00 | 0.00 |
| MISC EQUIP | 109.29 | 0.00 |
| TOTAL | 1203.30 | 3338.74 |

TOTAL SITE ENERGY 4542.02 MBTU 137.0 KBTU/SQFT-YR GROSS-AREA 137.0 KBTU/SQFT-YR NET-AREA TOTAL SOURCE ENERGY 6952.20 MBTU 209.7 KBTU/SQFT-YR GROSS-AREA 209.7 KBTU/SQFT-YR NET-AREA

PERCENT OF HOURS ANY SYSTEM ZONE OUTSIDE OF THROTTLING RANGE = 7.2 PERCENT OF HOURS ANY PLANT LOAD NOT SATISFIED = 0.0

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3962ECO3.SIN 12 2'94 FT BRAGG ENERGY STUDY HANGAR 3962

SIMMONS ARMY AIRFIELD

ECO-3

ORT- BEPS ESTIMATED BUILDING ENERGY PERFORMANCE

DOE-2.1C 12/2 1994 8:20:14 PDL RUN 1

ELECTRIC IR HEAT

WEATHER FILE- TMY RALEIGH, NO

| ENERGY TYPE IN SITE MBTU - | ELECTRICITY | FUEL-OIL |
|-------------------------------|-------------|----------|
| CATEGORY OF USE | | |
| SPACE HEAT | 887.74 | 1688.66 |
| SPACE COOL | 204.36 | 0.00 |
| HVAC AUX | 28.06 | 0.00 |
| DOM BOT WTR | 0.00 | 0.00 |
| AUX SOLAR | 0.00 | 0.00 |
| LIGHTS | 607.47 | 0.00 |
| VERT TRANS | 0.00 | 0.00 |
| MISC EQUIP | 109.29 | 0.00 |
| morn) t | ********** | |
| TOTAL | 1836.92 | 1688.66 |

TOTAL SITE ENERGY 3525.56 MBTU 106.3 KBTU/SQFT-YR GROSS-AREA 106.3 KBTU/SQFT-YR NET-AREA TOTAL SOURCE ENERGY 7204.89 MBTU 217.3 KBTU/SQFT-YR GROSS-AREA

217.3 KBTU/SQFT-YR NET-AREA

PERCENT OF HOURS ANY SYSTEM ZONE OUTSIDE OF THROTTLING RANGE = 7.2 PERCENT OF HOURS ANY PLANT LOAD NOT SATISFIED = 0.0

3962ECO4.SIN 12/12/94 Page 1
FT BRAGG ENERGY STUDY SIMMONS ARMY AIRFIELD ECO-4

DOE-2.1C 12/ 8/1994 16:38: 3 PDL RUN 1 HVAC RENOVATIONS

WEATHER FILE- TMY RALEIGH, NC

DRT- BEPS ESTIMATED BUILDING ENERGY PERFORMANCE

| ENERGY TYPE IN SITE MBTU - | ELECTRICITY | FUEL-OIL |
|-------------------------------|-------------|----------|
| CATEGORY OF USE | | |
| SPACE HEAT | 161.86 | 3667.50 |
| SPACE COOL | 336.20 | 0.00 |
| HVAC AUX | 228.34 | 0.00 |
| DON HOT WTR | 0.00 | 0.00 |
| AUX SOLAR | 0.00 | 0.00 |
| LIGHTS | 607.47 | 0.00 |
| VERT TRANS | 0.00 | 0.00 |
| HISC EQUIP | 109.29 | 0.00 |
| TOTAL | 1443.16 | 3667.50 |

TOTAL SITE ENERGY 5110.64 MBTU 154.1 KBTU/SQFT-YR GROSS-AREA 154.1 KBTU/SQFT-YR NET-AREA TOTAL SOURCE ENERGY 8001.24 MBTU 241.3 KBTU/SQFT-YR GROSS-AREA 241.3 KBTU/SQFT-YR NET-AREA

PERCENT OF HOURS ANY SYSTEM ZONE OUTSIDE OF THROTTLING RANGE = 16.7 PERCENT OF HOURS ANY PLANT LOAD NOT SATISFIED = 0.0

FT BRAGG ENERGY STUDY
SIMMONS ARM
BASE CASE

4137.SIM 12 1 94 Page 1
TT RDAGG FNERGY STUDY SIMMONS ARMY AIRFIELD

DOF-2.1C 12/1/ PRESENT ENERGY USAGE

DOF-2.1C 12/1/1994 13:35:21 PDL RUN 1

WEATHER FILE- THY RALEIGE, NO

ORT- BEPS ESTIMATED BUILDING ENERGY PERFORMANCE

| ENERGY TYPE IN SITE MBTU - | ELECTRICITY | FUEL-OIL |
|-------------------------------|-------------|----------|
| CATEGORY OF USE | | |
| SPACE HEAT | 158.57 | 3575.87 |
| SPACE COOL | 99.89 | 0.00 |
| HVAC AUX | 59.76 | 0.00 |
| DON HOT WTR | 0.00 | 0.00 |
| AUX SOLAR | 0.00 | 0.00 |
| LIGHTS | 357.33 | 0.00 |
| VERT TRANS | 0.00 | 0.00 |
| MISC EQUIP | 264.61 | 0.00 |
| TOTAL | 940.16 | 3575.87 |

TOTAL SITE ENERGY 4516.01 MBTU 240.9 KBTU/SQFT-YR GROSS-AREA 240.9 KBTU/SQFT-YR NET-AREA TOTAL SOURCE ENERGY 6399.12 MBTU 341.3 KBTU/SQFT-YR GROSS-AREA 341.3 KBTU/SQFT-YR NET-AREA

PERCENT OF HOURS ANY SYSTEM ZONE OUTSIDE OF THROTTLING RANGE = 97.3 PERCENT OF HOURS ANY PLANT LOAD NOT SATISFIED = 0.0

4137ECO2.SIN 12 1/94 Page 1

FT BRAGG ENERGY STUDY HANGAR 4137

SIMMONS ARMY AIRFIELD

ECO-2

ORT- BEPS ESTIMATED BUILDING ENERGY PERFORMANCE

DOE-2.1C 12/ 1/1994 13:57:21 PDL RUN 1 NG BOILERS & INFRA-RED RADIANT HEAT

WEATHER FILE- THY RALEIGH, NC

| ENERGY TYPE IN SITE MBTU - | ELECTRICITY | NATURAL-GAS |
|-------------------------------|-------------|-------------|
| CATEGORY OF USE | | |
| SPACE HEAT | 114.89 | 1955.24 |
| SPACE COOL | 68.81 | 0.00 |
| HVAC AUX | 44.68 | 0.00 |
| DOM HOT WTR | 0.00 | 0.00 |
| AUX SOLAR | 0.00 | 0.00 |
| LIGHTS | 357.33 | 0.00 |
| VERT TRANS | 0.00 | 0.00 |
| MISC EQUIP | 264.61 | 0.00 |
| TOTAL | 850.32 | 1955.24 |

TOTAL SITE ENERGY 2908.28 MBTU 155.1 KBTU/SQFT-YR GROSS-AREA 155.1 KBTU/SQFT-YR NET-AREA TOTAL SOURCE ENERGY 4817.23 MBTU 256.9 KBTU/SQFT-YR GROSS-AREA 256.9 KBTU/SQFT-YR NET-AREA

PERCENT OF HOURS ANY SYSTEM ZONE OUTSIDE OF THROTTLING RANGE = 97.2 PERCENT OF HOURS ANY PLANT LOAD NOT SATISFIED = 0.0

4137ECO3.SIM 12 '2/94 FI BRAGG ENERGY STUDY

BANGAR 4137

Page 1

SIMMONS ARMY AIRFIELD

ECO-3

ORT- BEPS ESTIMATED BUILDING ENERGY PERFORMANCE

DOE-2.1C 12/2/1994 13:18:46 PDL RUN 1

ELECTRIC IR HEAT

WEATHER FILE- TMY RALEIGH, NC

| ENERGY TYPE IN SITE MBTU - | ELECTRICITY | FUEL-OIL |
|-------------------------------|-------------|----------|
| CATEGORY OF USE | | |
| SPACE HEAT | 639.26 | 777.59 |
| SPACE COOL | 99.89 | 0.00 |
| HVAC AUX | 14.73 | 0.00 |
| DOM HOT WTR | 0.00 | 0.00 |
| AUX SOLAR | 0.00 | 0.00 |
| LIGHTS | 357.33 | 0.00 |
| VERT TRANS | 0.00 | 0.00 |
| MISC EQUIP | 264.61 | 0.00 |
| TOTAL | 1375.82 | 777.59 |

TOTAL SOURCE ENERGY 5364.33 MBTU 286.1 KBTU/SQFT-YR GROSS-AREA 286.1 KBTU/SQFT-YR NET-AREA

TOTAL SITE ENERGY 2304.97 MBTU 122.9 KBTU/SQFT-YR GROSS-AREA 122.9 KBTU/SQFT-YR NET-AREA

PERCENT OF HOURS ANY SYSTEM ZONE OUTSIDE OF THROTTLING RANGE = 97.2 PERCENT OF HOURS ANY PLANT LOAD NOT SATISFIED = 0.0

4137ECO4.SIM 12/12/94 Page 1
FT BRAGG ENERGY STUDY SIMMONS ARMY AIRFIELD ECO-4

ORT- BEPS ESTIMATED BUILDING ENERGY PERFORMANCE

DOE-2.1C 12 12 1994 10:27:26 PDL RUN 1

HVAC RENOVATIONS

WEATHER FILE- THY RALEIGH, NO

| ENERGY TYPE IN SITE MBTU - | ELECTRICITY | FUEL-OIL |
|-------------------------------|-------------|----------|
| CATEGORY OF USE | | |
| SPACE HEAT | 147.34 | 3121.67 |
| SPACE COOL | 173.56 | 0.00 |
| HVAC AUX | 205.10 | 0.00 |
| DOM HOT WTR | 0.00 | 0.00 |
| AUX SOLAR | 0.00 | 0.00 |
| LIGHTS | 357.33 | 0.00 |
| VERT TRANS | 0.00 | 0.00 |
| HISC EQUIP | 264.61 | 0.00 |
| | | |

TOTAL SITE ENERGY 4269.59 MBTU 227.7 KBTU/SQFT-YR GROSS-AREA 227.7 KBTU/SQFT-YR NET-AREA TOTAL SOURCE ENERGY 6568.87 MBTU 350.4 KBTU/SQFT-YR GROSS-AREA 350.4 KBTU/SQFT-YR NET-AREA

PERCENT OF HOURS ANY SYSTEM ZONE OUTSIDE OF THROTTLING RANGE = 97.3 PERCENT OF HOURS ANY PLANT LOAD NOT SATISFIED = 0.0

TOTAL 1147.94 3121.67

4242.SIM FT BRAGG ENERGY STUDY

HANGAR 4242

12 1 94 Page 1

SIMMONS ARMY AIRFIELD

BASE CASE ORT- BEPS ESTIMATED BUILDING ENERGY PERPORMANCE DOE-2.1C 12 1/1994 14:23: 8 PDL RUN 1

PRESENT ENERGY USAGE

WEATHER FILE- TMY RALEIGH, NC

ENERGY TYPE

IN SITE MBTU - ELECTRICITY FUEL-OIL

CATEGORY OF USE

| ATEGORY OF USE | | |
|----------------|--------|---------|
| SPACE HEAT | 120.75 | 2326.89 |
| SPACE COOL | 35.73 | 0.00 |
| HVAC AUX | 39.18 | 0.00 |
| DOM HOT WTR | 0.00 | 0.00 |
| AUX SOLAR | 0.00 | 0.00 |
| LIGETS | 218.67 | 0.00 |
| VERT TRANS | 0.00 | 0.00 |
| MISC EQUIP | 103.54 | 0.00 |
| TOTAL | 517.87 | 2326.89 |

TOTAL SOURCE ENERGY 3882.07 MBTU 350.7 KBTU/SQFT-YR GROSS-AREA

TOTAL SITE ENERGY 2844.77 MBTU 257.0 KBTU/SQFT-YR GROSS-AREA 257.0 KBTU/SQFT-YR NET-AREA

350.7 KBTU/SQFT-YR NET-AREA

PERCENT OF HOURS ANY SYSTEM SOME OUTSIDE OF THROTTLING RANGE = 37.1 PERCENT OF HOURS ANY PLANT LOAD NOT SATISFIED = 0.0

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Page 1

FT BRAGG ENERGY STUDY HANGAR 4242

SIMMONS ARMY AIRFIELD

ECO-2

DOE-2.1C 12/1/1994 14:35: NG BOILERS & INFRA-RED RADIANT HEAT

ORT- BEPS ESTIMATED BUILDING ENERGY PERFORMANCE

WEATHER FILE- TMY RALEIGH, NC

DOE-2.1C 12/1/1994 14:35:25 PDL RUN 1

| ENERGY TYPE IN SITE MBTU - | ELECTRICITY | NATURAL-GAS |
|-------------------------------|-------------|-------------|
| CATEGORY OF USE | | |
| SPACE HEAT | 71.60 | 1269.81 |
| SPACE COOL | 35.73 | 0.00 |
| HVAC AUX | 29.41 | 0.00 |
| DOM BOT WTR | 0.00 | 0.00 |
| AUX SOLAR | 0.00 | 0.00 |
| LIGHTS | 218.67 | 0.00 |
| VERT TRANS | 0.00 | 0.00 |
| MISC EQUIP | 103.54 | 0.00 |
| TOTAL. | 458.95 | 1269.81 |
| IOIAL | 470.27 | 1207.01 |

TOTAL SITE ENERGY 1728.77 MBTU 156.2 KBTU/SQFT-YR GROSS-AREA 156.2 KBTU/SQFT-YR NET-AREA TOTAL SOURCE ENERGY 2648.06 MBTU 239.3 KBTU/SQFT-YR GROSS-AREA 239.3 KBTU/SQFT-YR NET-AREA

PERCENT OF HOURS ANY SYSTEM ZONE OUTSIDE OF THROTTLING RANGE = 34.8 PERCENT OF HOURS ANY PLANT LOAD NOT SATISFIED = 0.0

4242ECO3.SIN 12/2/94 Page 1

FT BRAGG ENERGY STUDY HANGAR 4242

SIMMONS ARMY AIRFIELD

ECO-3

ORT- BEPS ESTIMATED BUILDING ENERGY PERFORMANCE

DOF-2.1C 12/ 2/1994 14: 3:28 PDL RUN 1

ELECTRIC IR HEAT

WEATHER FILE- TMY RALEIGE, NC

| ENERGY TYPE IN SITE MBTU - | ELECTRICITY | FUEL-OIL |
|-------------------------------|-------------|----------|
| CATEGORY OF USE | | |
| SPACE HEAT | 66.85 | 1283.71 |
| SPACE COOL | 35.73 | 0.00 |
| HVAC AUX | 27.47 | 0.00 |
| DOM HOT WTR | 0.00 | 0.00 |
| AUX SOLAR | 0.00 | 0.00 |
| LIGHTS | 218.67 | 0.00 |
| VERT TRANS | 0.00 | 0.00 |
| MISC EQUIP | 103.54 | 0.00 |

TOTAL SITE ENERGY 1735.97 MBTU 156.8 KBTU/SQFT-YR GROSS-AREA 156.8 KBTU/SQFT-YR NET-AREA TOTAL SOURCE ENERGY 2641.85 MBTU 238.7 KBTU/SQFT-YR GROSS-AREA 238.7 KBTU/SQFT-YR NET-AREA

PERCENT OF HOURS ANY SYSTEM ZONE OUTSIDE OF THROTTLING RANGE = 34.8 PERCENT OF HOURS ANY PLANT LOAD NOT SATISFIED = 0.0

TOTAL 452.26 1283.71

DOE-2.1C 12 12 1994 9:57:33 PDL RUN 1

HVAC RENOVATIONS

WEATHER FILE- TMY RALEIGH, NC

4242ECO4.SIM 12 12 94 Page 1
PT BRAGG ENERGY STUDY SIMMONS ARMY AIRFIELD ECO-4 ORT- BEPS ESTINATED BUILDING ENERGY PERFORMANCE

| ENERGY TYPE IN SITE MBTU - | ELECTRICITY | FUEL-OIL |
|-------------------------------|-------------|----------|
| CATEGORY OF USE | | |
| SPACE BEAT | 102.67 | 1983.05 |
| SPACE COOL | 37.53 | 0.00 |
| HVAC AUX | 59.25 | 0.00 |
| DOM BOT WTR | 0.00 | 0.00 |
| AUX SOLAR | 0.00 | 0.00 |
| LIGHTS | 218.66 | 0.00 |
| VERT TRANS | 0.00 | 0.00 |
| MISC EQUIP | 103.54 | 0.00 |
| TOTAL | 521.66 | 1983.05 |

TOTAL SITE ENERGY 2504.72 MBTU 226.3 KBTU/SQFT-YR GROSS-AREA 226.3 KBTU/SQFT-YR NET-AREA TOTAL SOURCE ENERGY 3549.62 MBTU 320.7 KBTU/SQFT-YR GROSS-AREA 320.7 KBTU/SQFT-YR NET-AREA

PERCENT OF HOURS ANY SYSTEM ZONE OUTSIDE OF THROTTLING RANGE = 43.9 PERCENT OF HOURS ANY PLANT LOAD NOT SATISFIED = 0.0

7937.SIM

HANGAR 7937

12 '2 '94

Page 1

3FT BRAGG ENERGY STUDY

SIMMONS ARMY AIRFIELD

BASE CASE

DOE-2.1C 12/1/1994 8:32:15 PDL RUN 1

PRESENT ENERGY USAGE

WEATHER FILE- TMY RALEIGH, NC

ORT- BEPS ESTIMATED BUILDING ENERGY PERFORMANCE

| ENERGY TYPE IN SITE MBTU - | ELECTRICITY | FUEL-OIL |
|-------------------------------|-------------|----------|
| CATEGORY OF USE | | |
| SPACE BEAT | 320.25 | 12014.68 |
| SPACE COOL | 335.21 | 0.00 |
| HVAC AUX | 603.57 | 0.00 |
| DOM BOT WTR | 0.00 | 231.98 |
| AUX SOLAR | 0.00 | 0.00 |
| LIGHTS | 1254.90 | 0.00 |
| VERT TRANS | 0.00 | 0.00 |
| MISC EQUIP | 190.97 | 0.00 |
| TOTAL | 2704.89 | 12246.66 |

TOTAL SITE ENERGY 14951.49 MBTU 222.0 KBTU/SQFT-YR GROSS-AREA 222.0 KBTU/SQFT-YR NET-AREA TOTAL SOURCE ENERGY 20369.28 MBTU 302.4 KBTU/SQFT-YR GROSS-AREA 302.4 KBTU/SQFT-YR NET-AREA

PERCENT OF HOURS ANY SYSTEM ZONE OUTSIDE OF THROTTLING RANGE = 36.9 PERCENT OF HOURS ANY PLANT LOAD NOT SATISFIED = 1.9

7937ECO2.SIN 12/2/94 Page 1

FT BRAGG ENERGY STUDY HANGAR 7937

SIMMONS ARMY AIRFIELD

ECO-2

DOF-2.1C 12/1 1994 9:24:32 PDL RUN 1 N G BLRS & IR HEAT

WEATHER FILE- TMY RALEIGH, NC

RT- BEPS ESTIMATED BUILDING ENERGY PERFORMANCE

| ENERGY TYPE IN SITE MBTU - | ELECTRICITY | NATURAL-GAS |
|-------------------------------|-------------|-------------|
| CATEGORY OF USE | | |
| SPACE HEAT | 304.39 | 7739.89 |
| SPACE COOL | 335.21 | 0.00 |
| HVAC AUX | 515.71 | 0.00 |
| DOM HOT WTR | 0.00 | 99.88 |
| AUX SOLAR | 0.00 | 0.00 |
| LIGHTS | 1254.87 | 0.00 |
| VERT TRANS | 0.00 | 0.00 |
| MISC EQUIP | 190.96 | 0.00 |
| TOTAL | 2601.15 | 7839.77 |

TOTAL SITE ENERGY 10440.90 MBTU 155.0 KBTU/SQFT-YR GROSS-AREA 155.0 KBTU/SQFT-YR NET-AREA TOTAL SOURCE ENERGY 15650.97 MBTU 232.4 KBTU/SQFT-YR GROSS-AREA 232.4 KBTU/SQFT-YR NET-AREA

PERCENT OF HOURS ANY SYSTEM ZONE OUTSIDE OF THROTTLING RANGE = 12.4 PERCENT OF HOURS ANY PLANT LOAD NOT SATISFIED = 0.3

7937EC03.SIH 12/2/94

BANGAR 7937

FT BRAGG ENERGY STUDY

Page 1

SIMMONS ARMY AIRFIELD

ECO-3

DOE-2.1C 12/2/1994 9:30:38 PDL RUN 1

ELECTRIC IR HEAT

PORT- BEPS ESTIMATED BUILDING ENERGY PERFORMANCE

WEATHER FILE- THY RALEIGH, NC

| ENERGY TYPE IN SITE MBTU - | ELECTRICITY | FUEL-OIL |
|-------------------------------|-------------|----------|
| CATEGORY OF USE | | |
| SPACE HEAT | 2075.98 | 3088.13 |
| SPACE COOL | 335.21 | 0.00 |
| HVAC AUX | 366.17 | 0.00 |
| DOM HOT WTR | 0.00 | 231.98 |
| AUX SOLAR | 0.00 | 0.00 |
| LIGHTS | 1254.89 | 0.00 |
| VERT TRANS | 0.00 | 0.00 |
| MISC EQUIP | 190.97 | 0.00 |
| TOTAL | 4223.22 | 3320.11 |

TOTAL SITE ENERGY 7543.29 MBTU 112.0 KBTU/SQFT-YR GROSS-AREA 112.0 KBTU/SQFT-YR NET-AREA TOTAL SOURCE ENERGY 16002.34 MBTU 237.6 KBTU/SQFT-YR GROSS-AREA 237.6 KBTU/SQFT-YR NET-AREA

PERCENT OF HOURS ANY SYSTEM ZONE OUTSIDE OF THROTTLING RANGE = 34.6 PERCENT OF HOURS ANY PLANT LOAD NOT SATISFIED = 0.0

8944.SIH

HANGAR 8944

12, 2/94

Page 1

FT BRAGG ENERGY STUDY

SIMMONS ARMY AIRFIELD

BASE CASE

DOE-2.1C 11 28 PRESENT ENERGY USAGE

DOE-2.1C 11 28 1994 15:56: 8 PDL RUN 1

WEATHER FILE- THY RALEIGH, NC

PORT- BEPS ESTIMATED BUILDING ENERGY PERFORMANCE

| ENERGY TYPE IN SITE MBTU - | ELECTRICITY | FUEL-OIL |
|-------------------------------|-------------|----------|
| CATEGORY OF USE | | |
| SPACE HEAT | 314.47 | 10532.26 |
| SPACE COOL | 100.23 | 0.00 |
| HVAC AUX | 404.10 | 0.00 |
| DOM HOT WTR | 0.00 | 210.41 |
| AUX SOLAR | 0.00 | 0.00 |
| LIGHTS | 985.70 | 0.00 |
| VERT TRANS | 0.00 | 0.00 |
| MISC EQUIP | 184.07 | 0.00 |
| TOTAL | 1988.58 | 10742.67 |

TOTAL SITE ENERGY 12731.19 MBTU 228.8 KBTU/SQFT-YR GROSS-AREA 228.8 KBTU/SQFT-YR NET-AREA

TOTAL SOURCE ENERGY 16714.19 MBTU 300.3 KBTU/SQFT-YR GROSS-AREA 300.3 KBTU/SQFT-YR NET-AREA

PERCENT OF HOURS ANY SYSTEM ZONE OUTSIDE OF THROTTLING RANGE = 13.1

PERCENT OF HOURS ANY PLANT LOAD NOT SATISFIED

8944ECO2.SIH 12,2.94

HANGAR 8944

Page 1

FT BRAGG ENERGY STUDY

SIMMONS ARMY AIRFIELD

N G BLRS & IR HEAT DOE-2.1C 12/1/1994 8:49:11 PDL RUN 1

WEATHER FILE- TMY RALEIGH, NC

ORT- BEPS ESTIMATED BUILDING ENERGY PERFORMANCE

| ENERGY TYPE IN SITE MBTU - | ELECTRICITY | NATURAL-GAS |
|-------------------------------|-------------|-------------|
| CATEGORY OF USE | | |
| SPACE HEAT | 239.01 | 5457.17 |
| SPACE COOL | 100.23 | 0.00 |
| HVAC AUX | 302.22 | 0.00 |
| DON HOT WTR | 0.00 | 80.73 |
| AUX SOLAR | 0.00 | 0.00 |
| LIGHTS | 985.70 | 0.00 |
| VERT TRANS | 0.00 | 0.00 |
| MISC EQUIP | 184.07 | 0.00 |
| TOTAL | 1811.24 | 5537.90 |
| | | |

TOTAL SITE ENERGY 7349.07 MBTU 132.1 KBTU/SQFT-YR GROSS-AREA 132.1 KBTU/SQFT-YR NET-AREA

TOTAL SOURCE ENERGY 10976.85 MBTU 197.2 KBTU/SQFT-YR GROSS-AREA 197.2 KBTU/SQFT-YR NET-AREA

PERCENT OF HOURS ANY SYSTEM ZONE OUTSIDE OF THROTTLING RANGE = 1.0

PERCENT OF HOURS ANY PLANT LOAD NOT SATISFIED

8944ECO3.SIN 12/2/94 Page 1

FT BRAGG ENERGY STUDY

SIMMONS ARMY AIRFIELD

HANGAR 8944 ORT- BEPS ESTIMATED BUILDING ENERGY PERFORMANCE DOF-2.1C 1 ELECTRIC IR HEAT DOF-2.1C 12/ 2/1994 9:48:24 PDL RUN 1

WEATHER FILE- TMY RALEIGH, NC

| ENERGY TYPE IN SITE MBTU - | ELECTRICITY | FUEL-OIL |
|-------------------------------|-------------|----------|
| CATEGORY OF USE | | |
| SPACE HEAT | 1657.34 | 1105.78 |
| SPACE COOL | 100.23 | 0.00 |
| HVAC AUX | 174.79 | 0.00 |
| DOM HOT WIR | 0.00 | 210.41 |
| AUX SOLAR | 0.00 | 0.00 |
| LIGHTS | 985.69 | 0.00 |
| VERT TRANS | 0.00 | 0.00 |
| MISC EQUIP | 184.07 | 0.00 |
| TOTAL | 3102.11 | 1316.20 |

TOTAL SITE ENERGY 4418.27 MBTU 79.4 KBTU/SQFT-YR GROSS-AREA 79.4 KBTU/SQFT-YR NET-AREA

TOTAL SOURCE ENERGY 10631.75 MBTU 191.0 KBTU/SQFT-YR GROSS-AREA 191.0 KBTU/SQFT-YR NET-AREA

PERCENT OF HOURS ANY SYSTEM ZONE OUTSIDE OF THROTTLING RANGE = 2.0 PERCENT OF HOURS ANY PLANT LOAD NOT SATISFIED

9647.SIN

12/2,94

Page 1

FT BRAGG ENERGY STUDY HANGAR 9647

SIMMONS ARMY AIRFIELD

BASE CASE

DOF-2.1C 12: 2 1994 11:54:52 PDL RUN 1

PRESENT ENERGY USAGE

WEATHER FILE- TMY RALEIGH, NC

RT- BEPS ESTIMATED BUILDING ENERGY PERFORMANCE

| ENERGY TYPE IN SITE MBTU - | ELECTRICITY | FUEL-OIL |
|-------------------------------|-------------|----------|
| CATEGORY OF USE | | |
| SPACE HEAT | 273.52 | 7995.96 |
| SPACE COOL | 225.12 | 0.00 |
| HVAC AUX | 573.72 | 0.00 |
| DOM HOT WTR | 0.00 | 231.98 |
| AUX SOLAR | 0.00 | 0.00 |
| LIGHTS | 1132.44 | 0.00 |
| VERT TRANS | 0.00 | 0.00 |
| NISC EQUIP | 178.32 | 0.00 |
| TOTAL | 2383.12 | 8227.94 |

TOTAL SITE ENERGY 10611.09 MBTU 202.6 KBTU/SQFT-YR GROSS-AREA 202.6 KBTU/SQFT-YR NET-AREA TOTAL SOURCE ENERGY 15384.57 MBTU 293.7 KBTU/SQFT-YR GROSS-AREA 293.7 KBTU/SQFT-YR NET-AREA

PERCENT OF HOURS ANY SYSTEM ZONE OUTSIDE OF THROTTLING RANGE = 54.3 PERCENT OF HOURS ANY PLANT LOAD NOT SATISFIED = 0.0

9647ECO2.SIH

12/2/94

Page 1

FT BRAGG ENERGY STUDY HANGAR 9647

SIMMONS ARMY AIRFIELD

DOF-2.1C 12/ 2'1994 13:1/:
NG BOILERS & INFRA-RED RADIANT HEAT

WEATHER FILE- TMY RALEIGH, NC

DOF-2.1C 12/ 2'1994 13:17:40 PDL RUN 1

PORT- BEPS ESTIMATED BUILDING ENERGY PERFORMANCE

| ENERGY TYPE IN SITE MBTU - | ELECTRICITY | NATURAL-GAS |
|-------------------------------|-------------|-------------|
| CATEGORY OF USE | | |
| SPACE HEAT | 219.50 | 4845.76 |
| SPACE COOL | 225.12 | 0.00 |
| HVAC AUX | 559.05 | 0.00 |
| DOM HOT WTR | 4.35 | 81.47 |
| AUX SOLAR | 0.00 | 0.00 |
| LIGHTS | 1132.43 | 0.00 |
| VERT TRANS | 0.00 | 0.00 |
| MISC EQUIP | 178.32 | 0.00 |
| TOTAL | 2318.77 | 4927.23 |

TOTAL SITE ENERGY 7246.07 MBTU 138.3 KBTU/SQFT-YR GROSS-AREA 138.3 KBTU/SQFT-YR NET-AREA

TOTAL SOURCE ENERGY 11890.72 MBTU 227.0 KBTU/SQFT-YR GROSS-AREA 227.0 KBTU/SQFT-YR NET-AREA

PERCENT OF HOURS ANY SYSTEM ZONE OUTSIDE OF THROTTLING RANGE = 49.5 PERCENT OF HOURS ANY PLANT LOAD NOT SATISFIED

9647ECO3.SIN 12 2'94 Page 1

FT BRAGG ENERGY STUDY HANGAR 9647

SIMMONS ARMY AIRFIELD

ORT- BEPS ESTIMATED BUILDING ENERGY PERFORMANCE

DOE-2.1C 12/2 1994 14:50:57 PDL RUN 1 ELECTRIC IR HEAT

WEATHER FILE- TMY RALEIGH, NC

| ENERGY TYPE IN SITE MBTU - | ELECTRICITY | FUEL-OIL |
|-------------------------------|-------------|----------|
| CATEGORY OF USE | | |
| SPACE HEAT | 1399.91 | 1555.23 |
| SPACE COOL | 225.12 | 0.00 |
| HVAC AUX | 470.27 | 0.00 |
| DOM HOT WTR | 0.00 | 231.98 |
| AUX SOLAR | 0.00 | 0.00 |
| LIGHTS | 1132.45 | 0.00 |
| VERT TRANS | 0.00 | 0.00 |
| MISC EQUIP | 178.33 | 0.00 |
| TOTAL | 3406.07 | 1787.20 |

TOTAL SITE ENERGY 5193.30 MBTU 99.1 KBTU/SQFT-YR GROSS-AREA 99.1 KBTU/SQFT-YR NET-AREA

TOTAL SOURCE ENERGY 12015.74 MBTU 229.4 KBTU/SQFT-YR GROSS-AREA 229.4 KBTU/SQFT-YR NET-AREA

PERCENT OF HOURS ANY SYSTEM ZONE OUTSIDE OF THROTTLING RANGE = 49.5 PERCENT OF HOURS ANY PLANT LOAD NOT SATISFIED = 0.0

8 ECO - 2 LIFE CYCLE COST ANALYSIS

LIMITED ENERGY STUDY OF HANGAR FACILITIES AT SIMMONS ARMY AIRFIELD, FT. BRAGG, NC

This section contains the life-cycle cost analyses and construction cost estimates for ECO-2: Install Natural Gas Boiler and Infrared Heaters. The analyses and estimates are sorted by building number.

| LCCA ECO-2A - ALL BUILDINGS 8-2 |
|--|
| LCCA ECO-2B - ALL BUILDINGS |
| COST ESTIMATE FOR NATURAL GAS LINE EXTENSION 8-4 |
| |
| LCCA AND COST ESTIMATE: (sorted by building) |
| 2936 |
| 3007 |
| |
| 3262 |
| 3354 |
| 3637 |
| 3642 |
| 3807 8-50 |
| 3954 |
| 3962 |
| 4137 |
| 4242 |
| |
| 7,57 |
| 8944 |
| 9647 8-99 |

LCCA ECO-2A

All Buildings

LIFE CYCLE COST ANALYSIS SUMMARY

ENERGY CONSERVATION INVESTMENT PROGRAM (ECIP)

INSTALLATION & LOCATION: FORT BRAGG REGION NOS. 4 CENSUS: 3 PROJECT NO. & TITLE: 94013.04 LES: ECO2A - TOTAL FOR ALL BUILDINGS FISCAL YEAR 95 DISCRETE PORTION NAME: ECO ANALYSIS DATE: 12-13-94 ECONOMIC LIFE 20 YEARS PREPARED BY: G.B. LOFLIN 1. INVESTMENT A. CONSTRUCTION COST \$ 1599836. 79992. 79992. B. SIOH C. DESIGN COST D. TOTAL COST (1A+1B+1C) \$ 1759820. E. SALVAGE VALUE OF EXISTING EQUIPMENT \$
F. PUBLIC UTILITY COMPANY REBATE \$ 0. 0. G. TOTAL INVESTMENT (1D - 1E - 1F) 1759820. 2. ENERGY SAVINGS (+) / COST (-) DATE OF NISTIR 85-3273-X USED FOR DISCOUNT FACTORS OCT 1994 UNIT COST SAVINGS ANNUAL \$ DISCOUNT DISCOUNTED \$/ MWH(1) MWH/YR(2) SAVINGS(3) FACTOR(4) SAVINGS(5) FUEL 15.08 142450. 18.57 9771453. \$ 0. 21.02 18.58 -4223768. 0. 17.38 0. \$ 0. 10791. \$ 308313. 14.88 0. \$ 5690136. N. TOTAL 3. NON ENERGY SAVINGS(+) / COST(-) A. ANNUAL RECURRING (+/-) \$ 32761. (1) DISCOUNT FACTOR (TABLE A) 14.88 (2) DISCOUNTED SAVING/COST (3A X 3A1) \$ 487484. B. NON RECURRING SAVINGS(+) / COSTS(-) SAVINGS(+) YR DISCNT COST(-) OC FACTR DISCOUNTED AVINGS, COST(-) SAVINGS(+)/ COST(-)(4) (1) (2) (3) 0. 0. d. TOTAL C. TOTAL NON ENERGY DISCOUNTED SAVINGS(+)/COST(-)(3A2+3Bd4)\$ 487484. 4. FIRST YEAR DOLLAR SAVINGS 2N3+3A+(3Bd1/(YRS ECONOMIC LIFE))\$ 341074. 5. SIMPLE PAYBACK PERIOD (1G/4) 5.16 YEARS \$ 6177619. 6. TOTAL NET DISCOUNTED SAVINGS (2N5+3C) 7. SAVINGS TO INVESTMENT RATIO (SIR) = (6 / 1G) = 3.51 (IF < 1 PROJECT DOES NOT OUALIFY) 9.67 % 8. ADJUSTED INTERNAL RATE OF RETURN (AIRR):

LCCA ECO-2B

All Buildings

PROJECT NO. & TITLE: 94013.04 ECO2B-TOTAL (ALL BUILDINGS) FISCAL YEAR 95 DISCRETE PORTION NAME: ECO2B-TOT ANALYSIS DATE: 04-21-95 ECONOMIC LIFE 20 YEARS PREPARED BY: LOFLIN 1. INVESTMENT A. CONSTRUCTION COST 2751666. 137583. B. SIOH C. DESIGN COST C. DESIGN COST \$ 137583. D. TOTAL COST (1A+1B+1C) \$ 3026832. 137583. E. SALVAGE VALUE OF EXISTING EQUIPMENT \$ 0. 0. F. PUBLIC UTILITY COMPANY REBATE 3026832. G. TOTAL INVESTMENT (1D - 1E - 1F) 2. ENERGY SAVINGS (+) / COST (-) DATE OF NISTIR 85-3273-X USED FOR DISCOUNT FACTORS OCT 1994 UNIT COST SAVINGS ANNUAL \$ DISCOUNT DISCOUNTED \$/MWH(1) MWH/YR(2) SAVINGS(3) FACTOR(4) SAVINGS(5) FUEL 270. \$ 9437. 27435. \$ 526203. 0. \$ 0. -16914. \$ -227324. 0. \$ 0. 0. \$ 0. 10791. \$ 308316. A. ELECT \$ 34.95 B. DIST \$ 19.18 C. RESID \$.00 D. NAT G \$ 13.44 270. 9437. 15.08 142302. 18.57 9771595. 21.02 0. 18.58 \$ -4223683. -16914. E. COAL \$.00 F. PPG \$.00 16.83 0. 0. 17.38 M. DEMAND SAVINGS 14.88 0. 5690214. N. TOTAL 3. NON ENERGY SAVINGS(+) / COST(-) A. ANNUAL RECURRING (+/-) 32761. (1) DISCOUNT FACTOR (TABLE A) 14.88 (2) DISCOUNTED SAVING/COST (3A X 3A1) \$ 487484. B. NON RECURRING SAVINGS (+) / COSTS (-) DISCOUNTED SAVINGS(+) YR DISCNT SAVINGS(+)/ ITEM COST(-) OC FACTR (2) (3) COST(-)(4)(1) 0. 0. d. TOTAL C. TOTAL NON ENERGY DISCOUNTED SAVINGS(+)/COST(-)(3A2+3Bd4)\$ 487484. 4. FIRST YEAR DOLLAR SAVINGS 2N3+3A+(3Bd1/(YRS ECONOMIC LIFE))\$ 341077. 5. SIMPLE PAYBACK PERIOD (1G/4) 8.87 YEARS \$ 6177698. 6. TOTAL NET DISCOUNTED SAVINGS (2N5+3C) 7. SAVINGS TO INVESTMENT RATIO (SIR) = (6 / 1G) =2.04 (IF < 1 PROJECT DOES NOT QUALIFY) 6.74 % 8. ADJUSTED INTERNAL RATE OF RETURN (AIRR):

LIFE CYCLE COST ANALYSIS SUMMARY
ENERGY CONSERVATION INVESTMENT PROGRAM (ECIP)
LCCID FY95 (92)

INSTALLATION & LOCATION: FORT BRAGG REGION NOS. 4 CENSUS: 3

COST ESTIMATE for Natural Gas Line Extension

_____ Date: 04-Apr-95 Estimate: SIMMONS AAF Description: COST ESTIMATE (100% OF REQ'D MAIN - 6" & 4" STEEL) LIMITED EEAP(HGR) Bid Date: Project: FORT BRAGG, N.C. Job #: 94013.04 Location: Sq. footage: MAIN GAS LINE City indx:Raleigh, NC Description Line # Labor Matl Equipment Sub Manhours ______ 0205541750 PAVEMENT REMOVAL, BITUMINOUS, 4" TO 6" THICK 560.00 S.Y. 0.00 1.73 2.50 0.00 4.23 Unit values 0.10 \$0 \$967 \$0 Totals 53.20 \$1,401 \$2,368 TAMPING TRENCH B'FILL, VIBRATING PLATE, ADD 0222541900 2550.00 C.Y. 0.00 1.44 0.55 0.00 1.99 Unit values 0.09 Totals 226,95 \$0 \$3,667 \$1,411 \$0 \$5,078 0222582800 TRENCH EXCVTNG 40HP CHNTRNCHR&BKFL 12"W24"D 23000.00 L.F. 0.20 0.00 0.00 0.20 0.39 Unit values 0.01 \$0 \$9,004 Totals 230.00 \$0 \$4,502 \$4,502 HORZ BORNG >100' RRWK .5"WALL 24"DIA CASING 0222700500 600.00 L.F. 42.93 165.09 125.10 0.00 333.12 9.14 Unit values \$25,755 \$99,056 \$75,058 \$0 \$199,869 Totals 5485.80 ASPHALTIC CONCRETE PAVEMENT, PAVING, BINDER 0251040200 COURSE, 4" THICK 560.00 S.Y. Unit values 0.02 5.30 0.37 0.33 0.00 6.01 Totals \$2,969 \$210 \$186 \$0 \$3,365 11.76 0251040380 ASPHALTIC CONCRETE PAVEMENT, PAVING, WEARING COURSE, 2" THICK 560.00 S.Y. 0.02 0.27 0.25 0.00 3.48 Unit values 2.96 Totals 8.40 \$1,657 \$152 \$138 \$0 \$1,947 BEDDING, FOR PIPE IN TRENCH SAND, DEAD OR 0260120200 650.00 C.Y. BANK 2.79 0.00 7.71 Unit values 0.16 3.79 1.13 \$0 Totals 104.00 \$2,462 \$1,814 \$736 \$5,012 0260120500 BEDDING, PLACING IN TRENCH 650.00 C.Y. 0.55 1.99 Unit values 0.09 0.00 1.44 0.00 57.85 \$0 \$935 \$360 \$0 \$1,295 Totals CUT IN VALVES, W/DUCK TIP GASKET, 4" DIAMETER 0266907800 2.00 Ea.

| MeansDat | | T | |
|----------|-------|----------|--|
| Weanglar | a ror | 14011119 | |
| | | | |

05-Apr-95

Page 2

| Unit values Totals | 1.56 3.11 | 404.00 \$808 | 29.36 \$59 | 4.89 \$10 | 0.00 \$0 | |
|-----------------------|-----------------|---------------------------|------------------|------------------|-------------------|--------------------|
| 0266907820 | CUT IN VA | LVES, W/DUC | K TIP GASE | KET, 6" DI | AMETER 1.00 | Ea. |
| Unit values Totals | 2.33 2.33 | 530.25 \$530 | 43.83 \$44 | 7.36 \$7 | | 581.44 |
| 0268520700 | | CE&DISTRIB OAT&WRAP 4" | | | PLAIN 13500.00 | L.F. |
| Unit values Totals | 0.19 2538.00 | 9.39 \$126,806 | 3.71 \$50,090 | 1.62 \$21,828 | 0.00 \$0 | 14.72 \$198,724 |
| 0268520800 | | CE&DISTRIB OAT&WRAP 6" | | | PLAIN 10000.00 | L.F. |
| Unit values Totals | | 17.27 \$172,710 | | 2.29 \$22,892 | | 24.84 \$248,364 |

| ========= | ======== | ====== | ======= | ========= | ======= | ========= |
|-----------------------|------------------------|----------------|-------------------|-----------------|---------------------|------------------------|
| Line # | Description | | | | | |
| | Manhours | | | | | |
| ========= | ======== | ====== | ======= | ======= | ======= | ========= |
| U02 SITEWORK | 11392 \$3 | 33,697 | \$214,258 | \$128,529 | \$0 | \$676,484 |
| 1517019310 | אמדת ויג | | | | 1350 00 | Ea. |
| Unit values Totals | 1.60 2160.00 | 0.00 \$0 | 24.81 \$33,487 | 3.09 \$4,165 | 0.00 | 27.89 \$37,652 |
| 1517019330 | PIPE STEEL 6" DIAM | SCH 40 | WELD ONE | JOINT LABOR | ONLY | T a |
| Unit values Totals | 2.00 1900.00 | 0.00 \$0 | 30.86 \$29,312 | 3.87 \$3,678 | 0.00 | 34.73 \$32,990 |
| 1517203130 | PIPE LONG R | ADIUS W | ELD ELBOW | 90< 4"DIAM | 10.00 | Fa |
| Unit values Totals | 3.20 32.00 | 17.13 \$171 | 49.31 \$493 | 6.20 \$62 | 0.00 | 72.64 \$726 |
| 1517203140 | PIPE LONG R | ADIUS W | ELD ELBOW | 90< 6"DIAM | 10.00 | E-5 |
| Unit values Totals | 4.80 48.00 | 40.96 \$410 | 76.84 \$768 | 6.17 \$62 | 0.00 | 123.97 \$1,240 |
| 1517203290 | PIPE WELD E | LBOW 45 | < 4"DIAM | LONG | | _ |
| Unit values Totals | 3.20 19.20 | 14.69 \$88 | 49.31 \$296 | 6.20 \$37 | 6.00 0.00 \$0 | 70.19 \$421 |
| 1517203300 | PIPE WELD E | LBOW 45 | < 6"DIAM | LONG | 4 00 | D- |
| Unit values Totals | 4.80 19.20 | 31.47 \$126 | 76.84 \$307 | 6.17 \$25 | 4.00 0.00 \$0 | 114.47 |
| 1517203440 | PIPE BLACK | STEEL W | ELD TEE 4 | "MAIG" | | _ |
| Unit values Totals | 5.33 21.33 | 30.97 \$124 | 82.28 \$329 | | 4.00 0.00 \$0 | Ea. 123.56 \$494 |
| 1517203450 | PIPE BLACK | STEEL W | ELD TEE 6 | "DIAM | 0.00 | 77 - |
| Unit values Totals | 8.00 16.00 | 56.94 \$114 | | | 2.00 0.00 \$0 | 194.91 |
| 1517203496 | REDUCER, EC | CENTRIC | , BUTT WE | LD 6"DIAM | 2 00 | E-s |
| Unit values Totals | 4.80 14.40 | 32.47 \$97 | | | 3.00 0.00 \$0 | 115.47 |
| 1562600142 | GAS APPLIANTYPE 4" PIP | | LATORS DO | UBLE DIAPHRA | AGM 3.00 | Ea. |

| 05-Apr-95 | | | MeansData for Lotus | | | |
|-------------|------|---------|---------------------|------|------|---------|
| Unit values | 2.00 | 1448.55 | 30.86 | 0.00 | 0.00 | 1479.41 |
| Totals | 6.00 | \$4,346 | \$93 | \$0 | \$0 | \$4,439 |

MeansData for Lotus

Page 4

| Line # | Descript | ion | | | | |
|--|---------------------------------------|----------------------|-----------|-----------|----------|---|
| | Manhours | Matl | Labor | Equipment | Sub | Total |
| ========= | ======= | ======= | ======= | ======= | ======== | ======== |
| U15 MECHANICA | 4237 | \$5,476 | \$65,571 | \$8,110 | \$0 | \$79,157 |
| ESTIMATE TOTA | A 15629 | \$339,173 | \$279,829 | \$136,639 | \$0 | \$755,641 |
| SALES TAX MATL MARKUP LABOR MARKUP EQUIPT MARKUP | | \$23,742 \$37,309 | \$97,940 | \$6,832 | . | |
| SUB MARKUP | 5.00% | | | | \$0 | |
| TOTAL BEFORE CONTINGENCY BOND PROFIT | CONTINGE 10.00% 5.00% 10.00% | \$400,224 | \$377,769 | \$143,471 | \$0 | \$921,464 \$92,146 \$46,073 \$92,146 |
| JOB TOTAL | • | | | | | \$1,151,830 |

Estimate: SIMMONS AAF Date: 04-Apr-95
Description: COST ESTIMATE (100% OF REQ'D MAIN - 6" & 4" STEEL)
Project: LIMITED EEAP(HGR) Bid Date:
Location: FORT BRAGG, N.C. Job #: 94013.04 Sq. footage: MAIN GAS LINE City indx:Raleigh, NC

| | | ======= SUMMARY | ======= | ======= | ***** | ======= |
|--|---------------------------------------|----------------------|-----------------------|---|------------|---|
| | Manhours | Matl | Labor | Equipment | Sub | Total |
| ========= | | | | ======================================= | | |
| U02 SITEWORK U15 MECHANICA | 11392 4237 | \$333,697 \$5,476 | \$214,258 \$65,571 | \$128,529 \$8,110 | \$0 \$0 | \$676,484 \$79,157 |
| TOTAL | 15629 | \$339,173 | \$279,829 | \$136,639 | \$0 | \$755,641 |
| SALES TAX MATL MARKUP LABOR MARKUP | 7.00% 11.00% 35.00% | \$23,742 \$37,309 | \$97,940 | 4.5.000 | | |
| EQUIPT MARKUP SUB MARKUP | 5.00% 5.00% | | | \$6,832 | \$0 | |
| TOTAL BEFORE CONTINGENCY BOND PROFIT | CONTINGE 10.00% 5.00% 10.00% | \$400,224 | \$377,769 | \$143,471 | \$0 | \$921,464 \$92,146 \$46,073 \$92,146 |
| JOB TOTAL | | | | | | \$1,151,830 |

LCCA & COST ESTIMATE (sorted by building)

LIFE CYCLE COST ANALYSIS SUMMARY

ENERGY CONSERVATION INVESTMENT PROGRAM (ECIP)

INSTALLATION & LOCATION: FORT BRAGG REGION NOS. 4 CENSUS: 3

PROJECT NO. & TITLE: 94013.04 LES: ECO2 - NAT GAS INFRARED HEAT FISCAL YEAR 95 DISCRETE PORTION NAME: ECO ANALYSIS DATE: 12-12-94 ECONOMIC LIFE 20 YEARS PREPARED BY: G.B. LOFLIN 1. INVESTMENT A. CONSTRUCTION COST \$ 169852. B. SIOH \$ 8493. C. DESIGN COST \$ 8493. D. TOTAL COST (1A+1B+1C) \$ 186838. E. SALVAGE VALUE OF EXISTING EQUIPMENT \$ 0. 0. F. PUBLIC UTILITY COMPANY REBATE
G. TOTAL INVESTMENT (1D - 1E - 1F) 186838. 2. ENERGY SAVINGS (+) / COST (-) DATE OF NISTIR 85-3273-X USED FOR DISCOUNT FACTORS OCT 1994 UNIT COST SAVINGS ANNUAL \$ DISCOUNT DISCOUNTED s/ MWH(1) MWH/YR(2) SAVINGS(3) FACTOR(4) SAVINGS(5) 20244. 742335. 0. \$ -274137. 0. 0. Ο. 488441. 3. NON ENERGY SAVINGS (+) / COST (-) \$ 2374. A. ANNUAL RECURRING (+/-) (1) DISCOUNT FACTOR (TABLE A) 14.88 (2) DISCOUNTED SAVING/COST (3A X 3A1) \$ 35319. B. NON RECURRING SAVINGS(+) / COSTS(-) SAVINGS(+) YR DISCNT DISCOUNTED
COST(-) OC FACTR SAVINGS(+),
(1) (2) (3) COST(-)(4) SAVINGS(+)/ ITEM \$ 0. d. TOTAL C. TOTAL NON ENERGY DISCOUNTED SAVINGS(+)/COST(-)(3A2+3Bd4)\$ 35319. 4. FIRST YEAR DOLLAR SAVINGS 2N3+3A+(3Bd1/(YRS ECONOMIC LIFE))\$ 6.46 YEARS 5. SIMPLE PAYBACK PERIOD (1G/4) 6. TOTAL NET DISCOUNTED SAVINGS (2N5+3C) \$ 523760. 7. SAVINGS TO INVESTMENT RATIO (SIR) = (6 / 1G) =2.80 (IF < 1 PROJECT DOES NOT OUALIFY) 8. ADJUSTED INTERNAL RATE OF RETURN (AIRR): 8.45 %

LIFE CYCLE COST ANALYSIS SUMMARY

ENERGY CONSERVATION INVESTMENT PROGRAM (ECIP)

INSTALLATION & LOCATION: FORT BRAGG REGION NOS. 4 CENSUS: 3 PROJECT NO. & TITLE: 94013.04 LES: ECO2 - NAT GAS INFRARED HEAT FISCAL YEAR 95 DISCRETE PORTION NAME: ECO ANALYSIS DATE: 12-12-94 ECONOMIC LIFE 20 YEARS PREPARED BY: G.B. LOFLIN 1. INVESTMENT A. CONSTRUCTION COST \$ 200987. B. SIOH \$ 10049. C. DESIGN COST \$ 10049. D. TOTAL COST (1A+1B+1C) \$ 221085. 0. 0. E. SALVAGE VALUE OF EXISTING EQUIPMENT \$
F. PUBLIC UTILITY COMPANY REBATE \$ G. TOTAL INVESTMENT (1D - 1E - 1F) 221085. 2. ENERGY SAVINGS (+) / COST (-) DATE OF NISTIR 85-3273-X USED FOR DISCOUNT FACTORS OCT 1994 UNIT COST SAVINGS ANNUAL \$ DISCOUNT DISCOUNTED \$/MWH(1) MWH/YR(2) SAVINGS(3) FACTOR(4) SAVINGS(5) 20244. 742335. 0. -274137. Ο. 0. 0. 488441. 3. NON ENERGY SAVINGS(+) / COST(-) \$ A. ANNUAL RECURRING (+/-)2374. (1) DISCOUNT FACTOR (TABLE A) 14.88 \$ 35319. (2) DISCOUNTED SAVING/COST (3A X 3A1) B. NON RECURRING SAVINGS(+) / COSTS(-) SAVINGS(+) YR DISCNT DISCOUNTED

COST(-) OC FACTR SAVINGS(+)/

(1) (2) (3) COST(-)(4) SAVINGS(+)/ COST(-)(4) d. TOTAL 0. C. TOTAL NON ENERGY DISCOUNTED SAVINGS(+)/COST(-)(3A2+3Bd4)\$ 35319. 4. FIRST YEAR DOLLAR SAVINGS 2N3+3A+(3Bd1/(YRS ECONOMIC LIFE))\$ 28937. 5. SIMPLE PAYBACK PERIOD (1G/4) 7.64 YEARS 6. TOTAL NET DISCOUNTED SAVINGS (2N5+3C) \$ 523760. 7. SAVINGS TO INVESTMENT RATIO (SIR) = (6 / 1G) = 2.37 (IF < 1 PROJECT DOES NOT QUALIFY) 8. ADJUSTED INTERNAL RATE OF RETURN (AIRR): 7.54 %

______ BLDG 2936 Date: 23-Nov-94 INSTALL INFARED HEATING SYSTEM COST ESTIMATE Description: LIMITED EEAP(HGR) Bid Date: Project: FORT BRAGG, N.C. Job #: 94013.04 Location: City indx:Raleigh, NC Sq. footage: Line # Description Manhours Matl Labor Equipment Sub ______ PAVEMENT REMOVAL, BITUMINOUS, 4" TO 6" THICK 0205541750 40.00 S.Y. 0.00 1.73 2.50 Unit values 0.10 0.00 Totals 3.80 \$0 \$69 \$100 \$0 \$169 0205543200 SITE REMOVAL, STEEL PIPE, WELDED CONNECTION, 4000.00 L.F. UP TO 4"DIAMETER 0.15 0.00 2.61 1.06 0.00 Unit values 3.68 600.00 \$0 \$10,450 \$4,255 \$0 Totals \$14,705 0207180380 HVAC DEMO, BOILER GAS/OIL STL >150MBH (qty) Ea. 0.00 0.00 268.07 0.00 268.07 Unit values 12.00 Totals 0.00 \$0 \$0 \$0 \$0 \$0 HVAC DEMO, MECH EQPT HEAVY ITEM 0207183600 2.00 Ton 0.00 0.00 0.00 314.87 314.87 14.55 Unit values \$0 29.09 \$0 \$630 \$0 Totals \$630 0208400600 REMOVE PIPE INSULATION UP TO 4" DIAMETER PIPE 4000.00 L.F. Unit values 0.07 0.00 1.63 0.20 0.00 1.83 Totals 284.00 \$0 \$6,536 \$783 \$0 \$7,319 REMOVE INSULATION FROM PIPE FITTING, UP TO 4" 0208401000 DIAMETER PIPE 500.00 Ea. Unit values 0.20 0.00 4.60 0.56 0.00 5.16 Totals 100.00 \$0 \$2,298 \$281 \$0 \$2,579 0222541900 TAMPING TRENCH B'FILL, VIBRATING PLATE, ADD 25.00 C.Y. 0.00 Unit values 0.09 1.44 0.55 0.00 1.99 2.23 \$14 \$50 Totals \$0 \$36 \$0 TRENCH EXCVTNG 40HP CHNTRNCHR&BKFL 12"W24"D 0222582800 250.00 L.F. 0.00 0.20 0.20 0.00 0.39 Unit values 0.01 \$98 Totals 2.50 \$0 \$49 \$49 \$0 0251040380 ASPHALTIC CONCRETE PAVEMENT, PAVING, WEARING

| | COURSE 2" T | нтск | | | 40.00 S Y | <i>r</i> . |
|-----------------------|-------------------------------|----------------|---------------|--------------|-------------------------|---------------|
| Unit values Totals | 0.02 | 2.96 \$118 | 0.27 \$11 | 0.25 \$10 | 0.00 | 3.48 \$139 |
| | | | | | | |
| 0260120200 | BEDDING, FOR BANK | | | | 5.00 C.Y | 7. |
| Unit values Totals | | 3.79 \$19 | 2.79 \$14 | 1.13 \$6 | 0.00 | |
| 0260120500 | BEDDING, PLA | CING IN T | RENCH | | E 00 G X | 7 |
| Unit values Totals | 0.09 | 0.00 \$0 | 1.44 \$7 | 0.55 \$3 | 5.00 C.Y 0.00 \$0 | 1.99 |
| 0266907800 | CUT IN VALVE | s, w/DUCK | TIP GASKET | , 4" DIAM | ETER 1.00 Ea. | |
| Unit values Totals | | 04.00 \$404 | 29.36 \$29 | 4.89 \$5 | 0.00 | 438.25 |
| 0268520150 | GAS SERVICE | & DISTRIB | PIPING, POL | YETHYLENE | ,60- | , |
| Unit values Totals | PSI 1-1/4"DI 0.06 15.60 | 0.63 \$163 | 1.10 \$285 | 0.00 | 0.00 \$0 | 1.72 \$448 |
| 0268520600 | GAS SERVICE& | DISTRIB P | IPING, SCH40 | STEEL PL | AIN 50.00 L.E | • |
| Unit values Totals | END, TAR COAT 0.11 5.70 | 3.40 \$170 | 2.63 | 0.15 \$8 | 0.00 | 6.19 \$309 |

| Line # | Descripti | lon | | | | |
|---|-----------|---------------------------|--------------------|-------------|-------------|-----------------------------|
| | Manhours | Matl | Labor | Equipment | Sub | Total |
| ======================================= | ======= | ======= | | | ======= | |
| U02 SITEWORK | 1047 | \$874 | \$20,545 | \$5,514 | \$0 | \$26,933 |
| 1551153320 | HTG BR GA | AS CI STD H | TWR GOP 2 | 000 MBH | | |
| Unit values Totals | 84.21 | | 1376.38 | 0.00 | | Ea. 13863.88 \$13,864 |
| 1554510245 Unit values Totals | (See Atta | ched Estim 0.00 | nate for d 0.00 | | 1.00 | LS 89623.00 \$89,623 |
| 1562600137 | | ANCE REGUL '4" PIPE SI | | BLE DIAPHRA | .GM 1.00 | Ea |
| Unit values Totals | 0.53 | | | 0.00 \$0 | 0.00 | 234.91 \$235 |
| U15 MECHANICAL | 85 | \$12,714 | \$1,385 | \$89,623 | \$0 | \$103,722 |

| ========== | | ======= | | ======================================= | | ======= |
|---|--|------------|----------|---|---------|--|
| Line # | Description | | | | | |
| | Manhours | Matl | Labor | Equipment | Sub | Total |
| | ======= | | | ======================================= | ======= | |
| ESTIMATE TOTAL | 1132 | \$13,588 | \$21,930 | \$95,137 | \$0 | \$130,655 |
| SALES TAX MATL MARKUP LABOR MARKUP | 0.00% 0.00% 0.00% | \$0 \$0 | \$0 | | | |
| EQUIPT MARKUP SUB MARKUP | 0.00% 0.00% | | ŲΨ | \$0 | \$0 | |
| TOTAL BEFORE C CONTINGENCY BOND PROFIT | ONTINGENC 20.00% 0.00% 10.00% | \$13,588 | \$21,930 | \$95,137 | \$0 | \$130,655 \$26,131 \$0 \$13,066 |
| JOB TOTAL | | | | | | \$169,852 |

JOB TOTAL

\$169,852

Estimate: BLDG 2936 23-Nov-94 Date:

Description: INSTALL INFARED HEATING SYSTEM COST ESTIMATE Project: LIMITED EEAP(HGR) Bid Date:

FORT BRAGG, N.C. Job #: 94013.04 Location: Sq. footage: ****** City indx:Raleigh, NC

SUMMARY Manhours Matl Labor Equipment Sub _______ \$874 \$0 U02 SITEWORK 1047 \$20,545 \$5,514 \$26,933 \$89,623 U15 MECHANICAL \$12,714 \$1,385 85 \$0 \$103,722 TOTAL 1132 \$13,588 \$21,930 \$95,137 \$0 \$130,655 SALES TAX 0.00% \$0 0.00% MATL MARKUP \$0 LABOR MARKUP 0.00% \$0 EQUIPT MARKUP 0.00% \$0 0.00% \$0 SUB MARKUP TOTAL BEFORE CONTINGENC \$13,588 \$21,930 \$95,137 \$0 \$130,655 \$26,131 CONTINGENCY 20.00% BOND 0.00% \$0 10.00% \$13,066 PROFIT

LIFE CYCLE COST ANALYSIS SUMMARY

ENERGY CONSERVATION INVESTMENT PROGRAM (ECIP)

INSTALLATION & LOCATION: FORT BRAGG REGION NOS. 4 CENSUS: 3

PROJECT NO 5 TITLE: 04022 04 TRG TGG REGION NOS. 4 CENSUS: 3 PROJECT NO. & TITLE: 94013.04 LES: ECO2 - NAT GAS INFRARED HEAT FISCAL YEAR 95 DISCRETE PORTION NAME: ECO ANALYSIS DATE: 12-12-94 ECONOMIC LIFE 20 YEARS PREPARED BY: G.B. LOFLIN 1. INVESTMENT A. CONSTRUCTION COST \$ 156174. C. DESIGN COST 7809. C. DESIGN COST \$ 7809. D. TOTAL COST (1A+1B+1C) \$ 171792. 0. 0. E. SALVAGE VALUE OF EXISTING EQUIPMENT \$ F. PUBLIC UTILITY COMPANY REBATE G. TOTAL INVESTMENT (1D - 1E - 1F) 171792. 2. ENERGY SAVINGS (+) / COST (-) DATE OF NISTIR 85-3273-X USED FOR DISCOUNT FACTORS OCT 1994 UNIT COST SAVINGS ANNUAL \$ DISCOUNT DISCOUNTED JS(3
726.
\$ 45104.
\$ 0.
\$ -18429.
0.
\$ 0.
\$ 1001.
\$ 7 \$/ MWH(1) MWH/YR(2) SAVINGS(3) FACTOR(4) SAVINGS(5) FUEL A. ELECT \$ 34.95 21.
B. DIST \$ 19.18 2352.
C. RESID \$.00 0.
D. NAT G \$ 13.44 -1371.
E. COAL \$.00 0.
F. PPG \$.00 0. 15.08 10952. 18.57 837586. 21.02 0. 18.58 -342407. 16.83 0. 17.38 Ο. M. DEMAND SAVINGS 14.88 0. N. TOTAL 506131. 3. NON ENERGY SAVINGS(+) / COST(-) \$ A. ANNUAL RECURRING (+/-) 138. (1) DISCOUNT FACTOR (TABLE A) 14.88 (2) DISCOUNTED SAVING/COST (3A X 3A1) 2051. B. NON RECURRING SAVINGS(+) / COSTS(-) SAVINGS(+) YR DISCNT
COST(-) OC FACTR
(1) (2) (3) DISCOUNTED ITEM SAVINGS(+)/ COST(-)(4) d. TOTAL 0. C. TOTAL NON ENERGY DISCOUNTED SAVINGS(+)/COST(-)(3A2+3Bd4)\$ 2051. 4. FIRST YEAR DOLLAR SAVINGS 2N3+3A+(3Bd1/(YRS ECONOMIC LIFE))\$ 5. SIMPLE PAYBACK PERIOD (1G/4) 6.24 YEARS 6. TOTAL NET DISCOUNTED SAVINGS (2N5+3C) \$ 508182. 7. SAVINGS TO INVESTMENT RATIO (SIR) = (6 / 1G) =2.96 (IF < 1 PROJECT DOES NOT QUALIFY) 8. ADJUSTED INTERNAL RATE OF RETURN (AIRR): 8.74 %

LIFE CYCLE COST ANALYSIS SUMMARY STUDY: 3007E02B ENERGY CONSERVATION INVESTMENT PROGRAM (ECIP) LCCID FY95 (92) INSTALLATION & LOCATION: FORT BRAGG REGION NOS. 4 CENSUS: 3 PROJECT NO. & TITLE: 94013.04 LES: ECO2 - NAT GAS INFRARED HEAT FISCAL YEAR 95 DISCRETE PORTION NAME: ECO ANALYSIS DATE: 12-12-94 ECONOMIC LIFE 20 YEARS PREPARED BY: G.B. LOFLIN 1. INVESTMENT A. CONSTRUCTION COST \$ 187309. B. SIOH \$ 9365. C. DESIGN COST \$ 9365. D. TOTAL COST (1A+1B+1C) \$ 206039. B. SIOH C. DESIGN COST 9365. \$ 0. \$ 0. E. SALVAGE VALUE OF EXISTING EQUIPMENT \$ F. PUBLIC UTILITY COMPANY REBATE \$ 206039. G. TOTAL INVESTMENT (1D - 1E - 1F) 2. ENERGY SAVINGS (+) / COST (-) DATE OF NISTIR 85-3273-X USED FOR DISCOUNT FACTORS OCT 1994 UNIT COST SAVINGS ANNUAL \$ DISCOUNT DISCOUNTED \$/MWH(1) MWH/YR(2) SAVINGS(3) FACTOR(4) SAVINGS(5) FUEL A. ELECT \$ 34.95 21. \$ 726.
B. DIST \$ 19.18 2352. \$ 45104.
C. RESID \$.00 0. \$ 0.
D. NAT G \$ 13.44 -1371. \$ -18429.
E. COAL \$.00 0. \$ 0.
F. PPG \$.00 0. \$ 0.
M. DEMAND SAVINGS \$ 0.
N. TOTAL 1001. \$ 27402. 726. 15.08 45104. 18.57 10952. 837586. 0. 21.02 18.58 \$ -342407. \$ -342407. \$ 0. \$ 0. \$ 0. \$ 506131. 16.83 17.38 14.88 3. NON ENERGY SAVINGS(+) / COST(-) A. ANNUAL RECURRING (+/-) \$ 138. (1) DISCOUNT FACTOR (TABLE A) 14.88 (2) DISCOUNTED SAVING/COST (3A X 3A1) 2051. B. NON RECURRING SAVINGS (+) / COSTS (-) SAVINGS(+) YR DISCNT DISCOUNTED

COST(-) OC FACTR SAVINGS(+)/

(1) (2) (3) COST(-)(4) ITEM d. TOTAL 0. C. TOTAL NON ENERGY DISCOUNTED SAVINGS(+)/COST(-)(3A2+3Bd4)\$ 2051. 4. FIRST YEAR DOLLAR SAVINGS 2N3+3A+(3Bd1/(YRS ECONOMIC LIFE))\$ 27540. 5. SIMPLE PAYBACK PERIOD (1G/4) 7.48 YEARS 6. TOTAL NET DISCOUNTED SAVINGS (2N5+3C) \$ 508182. 7. SAVINGS TO INVESTMENT RATIO (SIR) = (6 / 1G) =2.47 (IF < 1 PROJECT DOES NOT QUALIFY) 8. ADJUSTED INTERNAL RATE OF RETURN (AIRR): 7.76 %

LIFE CYCLE COST ANALYSIS SUMMARY

| Estimate: Description: Project: Location: Sq. footage: | BLDG 3007 INSTALL INI LIMITED EEA FORT BRAGG | FARED HI AP(HGR) , N.C. | Date: EATING SYS Bid Date: Job #: Citv indx | 23-Nov-94 STEM COST ES 94013.04 S:Raleigh, N | TIMATE C | |
|--|---|-------------------------------|---|---|--------------------|------------------|
| Line # | Description | n | | | | |
| | Manhours | Matl | Labor | Equipment | Sub | Total |
| ======================================= | | | | | | |
| 0205541750 | PAVEMENT RI | EMOVAL, | BITUMINOU | JS, 4" TO 6" | THICK 40.00 | s v |
| Unit values Totals | 0.10 3.80 | 0.00 \$0 | 1.73 \$69 | 2.50 \$100 | 0.00 | 4.23 \$169 |
| 0205543200 | | | | DED CONNECT | | T. 🖸 |
| Unit values Totals | 0.15 450.00 | 0.00 \$0 | 2.61 \$7,838 | 1.06 \$3,191 | 0.00 | 3.68 \$11,029 |
| 0207183600 | HVAC DEMO, | MECH EQI | PT HEAVY I | TEM | 3.00 | Ton |
| Unit values Totals | 14.55 43.64 | 0.00 \$0 | 314.87 \$945 | 0.00 | 0.00 | 314.87 |
| 0208400600 | REMOVE PIPE | E INSULA | ATION UP I | O 4" DIAMET | ER PIPE 3000.00 | |
| Unit values Totals | 0.07 213.00 | 0.00 \$0 | 1.63 \$4,902 | 0.20 \$587 | 0.00 | 1.83 |
| 0208401000 | DIAMBRED DI | בחדי | | FITTING, U | 400 00 | T-C |
| Unit values Totals | 0.20 80.00 | 0.00 | 4.60 \$1,838 | 0.56 \$225 | 0.00 | 5.16 \$2,063 |
| 0222541900 | TAMPING TRE | ENCH B' | FILL, VIBR | ATING PLATE | , ADD 60.00 | CV |
| Unit values Totals | 0.09 5.34 | 0.00 \$0 | | 0.55 \$33 | 0.00 | 1.99 |
| 0222582800 | TRENCH EXC | TNG 40H | IP CHNTRNC | HR&BKFL 12" | W24"D 600.00 | ਸ . I |
| Unit values Totals | 0.01 6.00 | | | 0.20 \$117 | 0.00 | 0.39 |
| 0251040380 | ASPHALTIC C | | E PAVEMENT | , PAVING, W | EARING 40.00 | SY |
| Unit values Totals | | 2.96 | | 0.25 \$10 | 0.00 | 3.48 |

| 0260120200 | TO D ATTE | OR PIPE IN | | | 10 00 | C V |
|-----------------------|---------------|------------------------------|---------------|--------------|---------------|-----------------|
| Unit values Totals | 0.16 | 3.79 \$38 | 2.79 \$28 | 1.13 \$11 | 0.00 | 7.71 \$77 |
| 0260120500 | BEDDING, F | LACING IN ' | TRENCH | | 10.00 | ~ v |
| Unit values Totals | 0.09 0.89 | 0.00 \$0 | 1.44 \$14 | 0.55 \$6 | 0.00 | |
| 0266907800 | CUT IN VAL | VES, W/DUC | K TIP GASK | ET, 4" DIA | METER 1.00 | En |
| Unit values Totals | 1.56 1.56 | 404.00 \$404 | 29.36 \$29 | 4.89 \$5 | 0.00 | |
| 0268520150 | GAS SERVIC | E & DISTRI | B PIPING, P | OLYETHYLEN | E,60- | |
| Unit values Totals | 0.06 36.60 | DIAM SDR 10 0.63 \$382 | 1.10 \$670 | 0.00 | 0.00 | 1.72 \$1,052 |
| 0268520600 | GAS SERVIC | E&DISTRIB | PIPING, SCH | 40 STEEL P | LAIN | T T |
| Unit values Totals | 0.11 5.70 | AT&WRAP 1-1 3.40 \$170 | 2.63 \$131 | 0.15 \$8 | 0.00 \$0 | 6.19 \$309 |

| Line # | Descripti | on | | | | |
|---|------------------------|----------------------|--------------------|--|--------|-----------------------------|
| | Manhours | Matl | Labor | Equipment | Sub | Total |
| ======================================= | ======== | ======= | ======= | ========= | ====== | ======== |
| U02 SITEWORK | 849 | \$1,112 | \$16,678 | \$4,293 | \$0 | \$22,083 |
| 1531106180 | WTR HTR C REUSE EXI | | GAS 200 MB | H 192 GPH | 1.00 | Ea |
| Unit values Totals | 13.33 | | 226.88 | 0.00 \$0 | 0.00 | 2324.78 \$2,325 |
| 1551153320 | HTG BR GA | S CI STD I | HTWR GOP 2 | 000 MBH | | |
| Unit values Totals | | | 1376.38 \$1,376 | | | Ea. 13863.88 \$13,864 |
| 1554510245 Unit values Totals | (See Atta | ched Estir | mate for d 0.00 | AS ELEC IGN etails) 81627.00 \$81,627 | | LS 81627.00 \$81,627 |
| 1562600137 Unit values Totals | TYPE 1-1/- | 4" PIPE SI 225.77 | IZE | | 1.00 | 234.91 |
| U15 MECHANICAL | 99 | \$14,812 | \$1,612 | \$81,627 | \$0 | |

| Line # | Descripti | on | | | | |
|--|--|------------|----------|------------|-----|--|
| | Manhours | Matl | Labor | Equipment | Sub | Total |
| | ======= | | | | | |
| ESTIMATE TOTAL | 948 | \$15,924 | \$18,290 | \$85,920 | \$0 | \$120,134 |
| SALES TAX MATL MARKUP LABOR MARKUP | 0.00% 0.00% 0.00% | \$0 \$0 | \$0 | ^ 0 | | |
| EQUIPT MARKUP SUB MARKUP | 0.00% 0.00% | | | \$0 | \$0 | |
| TOTAL BEFORE CO CONTINGENCY BOND PROFIT | ONTINGENC 20.00% 0.00% 10.00% | \$15,924 | \$18,290 | \$85,920 | \$0 | \$120,134 \$24,027 \$0 \$12,013 |
| JOB TOTAL | | | | | | \$156,174 |

Estimate: BLDG 3007 Date: 23-Nov-94
Description: INSTALL INFARED HEATING SYSTEM COST ESTIMATE
Project: LIMITED EEAP(HGR) Bid Date:
Location: FORT BRAGG, N.C. Job #: 94013.04
Sq. footage: ******* City indx:Raleigh, NC

| OTHANA DA |
|-----------|
| SUMMARY |

| SUMMARY | | | | | | |
|--|------------------------------|---------------------|---------------------|---------------------|------------|------------------------------|
| | Manhours | Matl | Labor | Equipment | Sub | Total |
| ======================================= | ======= | ======= | ======= | ========= | | ======== |
| U02 SITEWORK U15 MECHANICAL | 849 99 | \$1,112 \$14,812 | \$16,678 \$1,612 | \$4,293 \$81,627 | \$0 \$0 | \$22,083 \$98,051 |
| TOTAL | 948 | \$15,924 | \$18,290 | \$85,920 | \$0 | \$120,134 |
| SALES TAX MATL MARKUP LABOR MARKUP | 0.00% 0.00% 0.00% | \$0 \$0 | \$0 | | | |
| EQUIPT MARKUP SUB MARKUP | 0.00% 0.00% | | | \$0 | \$0 | |
| CONTINGENCY BOND | ONTINGENC 20.00% 0.00% | \$15,924 | \$18,290 | \$85,920 | \$0 | \$120,134 \$24,027 \$0 |
| PROFIT | 10.00% | | | | | \$12,013 |
| JOB TOTAL | | | | | | \$156,174 |

LIFE CYCLE COST ANALYSIS SUMMARY

ENERGY CONSERVATION INVESTMENT PROGRAM (ECIP)

INSTALLATION & LOCATION: FORT BRAGG REGION NOS. 4 CENSUS: 3

PROJECT NO. 4 CENSUS: 3 PROJECT NO. & TITLE: 94013.04 LES: ECO2 - NAT GAS INFRARED HEAT FISCAL YEAR 95 DISCRETE PORTION NAME: ECO
ANALYSIS DATE: 12-12-94 ECONOMIC LIFE 20 YEARS PREPARED BY: G.B. LOFLIN 1. INVESTMENT A. CONSTRUCTION COST \$ 132691. B. SIOH \$ 6635. C. DESIGN COST \$ 6635. D. TOTAL COST (1A+1B+1C) \$ 145961. E. SALVAGE VALUE OF EXISTING EQUIPMENT \$
F. PUBLIC UTILITY COMPANY REBATE \$ 0. 0. G. TOTAL INVESTMENT (1D - 1E - 1F) 145961. 2. ENERGY SAVINGS (+) / COST (-) DATE OF NISTIR 85-3273-X USED FOR DISCOUNT FACTORS OCT 1994 UNIT COST SAVINGS ANNUAL \$ DISCOUNT DISCOUNTED \$/MWH(1) MWH/YR(2) SAVINGS(3) FACTOR(4) SAVINGS(5) FUEL 11379. 1194617. 0. \$ -667866. \$ 0. \$ 0. Û. 0. 538130. 3. NON ENERGY SAVINGS(+) / COST(-) 14.88 \$ 38479. A. ANNUAL RECURRING (+/-)(1) DISCOUNT FACTOR (TABLE A) (2) DISCOUNTED SAVING/COST (3A X 3A1) B. NON RECURRING SAVINGS(+) / COSTS(-) SAVINGS(+) YR DISCNT DISCOUNTED

COST(-) OC FACTR SAVINGS(+)/

(1) (2) (3) COST(-)(4) COST(-) OC FACTR
(1) (2) (3) ITEM d. TOTAL 0. 0. C. TOTAL NON ENERGY DISCOUNTED SAVINGS(+)/COST(-)(3A2+3Bd4)\$ 38479. 4. FIRST YEAR DOLLAR SAVINGS 2N3+3A+(3Bd1/(YRS ECONOMIC LIFE))\$ 31726. 5. SIMPLE PAYBACK PERIOD (1G/4) 4.60 YEARS 6. TOTAL NET DISCOUNTED SAVINGS (2N5+3C) \$ 576609. 7. SAVINGS TO INVESTMENT RATIO (SIR) = (6 / 1G) = 3.95 (IF < 1 PROJECT DOES NOT QUALIFY) 8. ADJUSTED INTERNAL RATE OF RETURN (AIRR): 10.32 %

LIFE CYCLE COST ANALYSIS SUMMARY ENERGY CONSERVATION INVESTMENT PROGRAM (ECIP) LCCID FY95 (92) INSTALLATION & LOCATION: FORT BRAGG REGION NOS. 4 CENSUS: 3 PROJECT NO. & TITLE: 94013.04 LES: ECO2 - NAT GAS INFRARED HEAT FISCAL YEAR 95 DISCRETE PORTION NAME: ECO ANALYSIS DATE: 12-12-94 ECONOMIC LIFE 20 YEARS PREPARED BY: G.B. LOFLIN 1. INVESTMENT A. CONSTRUCTION COST \$ 163826. 8191. B. SIOH C. DESIGN COST \$ 8191. D. TOTAL COST (1A+1B+1C) \$ 180208. E. SALVAGE VALUE OF EXISTING EQUIPMENT \$ F. PUBLIC UTILITY COMPANY REBATE 0. G. TOTAL INVESTMENT (1D - 1E - 1F) 180208. 2. ENERGY SAVINGS (+) / COST (-) DATE OF NISTIR 85-3273-X USED FOR DISCOUNT FACTORS OCT 1994 UNIT COST SAVINGS ANNUAL \$ DISCOUNT DISCOUNTED SAVINGS (3) MWH/YR(2) FUEL \$/ MWH(1) FACTOR(4) SAVINGS (5) 22. 3354. 0. -2675. 0. A. ELECT \$ 34.95 755. 15.08 11379. B. DIST \$ 19.18 \$ 64330. 18.57 1194617. 0. \$ 0. 2675. \$ -35945. 0. \$ 0. 0. \$ 0. 701. \$ 29140. C. RESID \$.00 21.02 D. NAT G \$ 13.44 E. COAL \$.00 F. PPG \$.00 -667866. 18.58 0. 16.83 17.38 0. M. DEMAND SAVINGS 0. 14.88 0. N. TOTAL 538130. 3. NON ENERGY SAVINGS(+) / COST(-) A. ANNUAL RECURRING (+/-)\$ 2586. (1) DISCOUNT FACTOR (TABLE A) 14.88 (2) DISCOUNTED SAVING/COST (3A X 3A1) \$ 38479. B. NON RECURRING SAVINGS(+) / COSTS(-) SAVINGS(+) YR DISCNT DISCOUNTED COST(-) ITEM OC FACTR SAVINGS(+)/ (1) (2) (3) COST(-)(4) d. TOTAL 0. C. TOTAL NON ENERGY DISCOUNTED SAVINGS(+)/COST(-)(3A2+3Bd4)\$ 4. FIRST YEAR DOLLAR SAVINGS 2N3+3A+(3Bd1/(YRS ECONOMIC LIFE))\$ 5. SIMPLE PAYBACK PERIOD (1G/4) 5.68 YEARS 6. TOTAL NET DISCOUNTED SAVINGS (2N5+3C) \$ 576609. 7. SAVINGS TO INVESTMENT RATIO (SIR) = (6 / 1G) =(IF < 1 PROJECT DOES NOT QUALIFY) 8. ADJUSTED INTERNAL RATE OF RETURN (AIRR): 9.17 %

STUDY: 3262E02B

BLDG 3262 23-Nov-94 Estimate: Date: INSTALL INFARED HEATING SYSTEM COST ESTIMATE Description: LIMITED EEAP(HGR) Bid Date: Project: FORT BRAGG, N.C. Job #: 94013.04 Location: ****** City indx: Raleigh, NC Sq. footage: Description Line # _____ Equipment Sub Matl Labor Total Manhours ______ PAVEMENT REMOVAL, BITUMINOUS, 4" TO 6" THICK 0205541750 30.00 S.Y. 0.00 1.73 2.50 Unit values 0.10 0.00 4.23 Totals 2.85 \$0 \$52 \$75 \$0 \$127 0205543200 SITE REMOVAL, STEEL PIPE, WELDED CONNECTION, UP TO 4"DIAMETER 2000.00 L.F. Unit values 0.15 0.00 2.61 1.06 0.00 3.68 Totals 300.00 \$0 \$5,225 \$2,128 \$0 \$7,353 HVAC DEMO, BOILER GAS/OIL STL >150MBH 0207180380 1.00 Ea. 0.00 Unit values 12.00 0.00 268.07 0.00 268.07 \$0 Totals 12.00 \$268 \$0 \$0 \$268 0207183600 HVAC DEMO, MECH EQPT HEAVY ITEM 4.00 Ton Unit values 14.55 0.00 314.87 0.00 0.00 314.87 Totals 58.18 \$0 \$1,259 \$0 \$0 \$1,259 0208400600 REMOVE PIPE INSULATION UP TO 4" DIAMETER PIPE 2000.00 L.F. 0.00 Unit values 0.07 1.63 0.20 0.00 1.83 Totals 142.00 \$0 \$3,268 \$391 \$0 \$3,659 REMOVE INSULATION FROM PIPE FITTING, UP TO 4" 0208401000 DIAMETER PIPE 250.00 Ea. Unit values 0.20 0.00 4.60 0.56 5.16 0.00 Totals 50.00 \$0 \$1,149 \$140 \$0 \$1,289 0222541900 TAMPING TRENCH B'FILL, VIBRATING PLATE, ADD 15.00 C.Y. 0.09 Unit values 0.00 1.44 0.55 0.00 1.99 Totals \$8 1.34 \$0 \$22 \$0 \$30 0222582800 TRENCH EXCVTNG 40HP CHNTRNCHR&BKFL 12"W24"D 200.00 L.F. Unit values 0.00 0.20 0.20 0.00 0.39 0.01 Totals 2.00 \$0 \$39 \$39 \$0 \$78 0251040380 ASPHALTIC CONCRETE PAVEMENT, PAVING, WEARING

| \ | | | | | | |
|-----------------------|-------------------------------|-----------------------------|---------------|-------------|--------------------------|---------------------|
| Unit values Totals | COURSE, 2" 0.02 0.45 | THICK 2.96 \$89 | 0.27 \$8 | 0.25 \$7 | 30.00 S. 0.00 \$0 | Y. 3.48 \$104 |
| 0260120200 | | R PIPE IN | TRENCH SA | ND, DEAD OF | 8.00 C. | v |
| Unit values Totals | BANK 0.16 1.28 | 3.79 \$30 | 2.79 \$22 | 1.13 \$9 | 0.00 | |
| 0260120500 | BEDDING, PL | ACING IN | FRENCH | | 0 00 0 | · · |
| Unit values Totals | 0.09 | 0.00 \$0 | 1.44 \$12 | 0.55 \$4 | 0.00 \$0 | 1.99 \$16 |
| 0266907800 | CUT IN VALV | ES, W/DUC | K TIP GASK | ET, 4" DIAN | | |
| Unit values Totals | 1.56 1.56 | 404.00 \$404 | 29.36 \$29 | 4.89 \$5 | 1.00 Ea 0.00 \$0 | 438.25 |
| 0268520150 | GAS SERVICE | & DISTRIE | B PIPING, P | OLYETHYLENE | 1,60- | _ |
| Unit values Totals | | 1AM SDR 10 0.63 \$132 | 1.10 \$231 | 0.00 \$0 | 0.00 L.1 0.00 \$0 | f. 1.72 \$363 |
| 0268520600 | GAS SERVICE | &DISTRIB I | PIPING, SCH | 40 STEEL PI | AIN | - |
| Unit values Totals | END, TAR COA' 0.11 5.70 | 3.40 \$170 | 2.63 \$131 | 0.15 \$8 | 50.00 L.1 0.00 \$0 | 6.19 \$309 |

| Line # | Description | ı | | | | |
|-------------------------------------|--|------------|--------------------|--|------|----------------------------|
| | Manhours | Matl | Labor | Equipment | Sub | Total |
| U02 SITEWORK | 591 | \$825 | \$11,715 | \$2,814 | \$0 | \$15,354 |
| 1551153320 | HTG BR GAS | CI STD H7 | TWR GOP 2 | 2000 MBH | 1 00 | To. |
| Unit values Totals | 84.21 12 84.21 S | | 1376.38 \$1,376 | 0.00 \$0 | | 13863.88 \$13,864 |
| 1554510245 Unit values Totals | HTG CO-RAY- (See Attach 0.00 0.00 | ned Estima | ite for d | GAS ELEC IGN details) 72617.00 \$72,617 | | LS 72617.00 \$72,617 |
| 1562600137 Unit values Totals | GAS APPLIAN TYPE 1-1/4' 0.53 0.53 | ' PIPE SIZ | Œ | JBLE DIAPHRAGN 0.00 \$0 | 1.00 | Ea. 234.91 \$235 |

U15 MECHANICAL 85 \$12,714 \$1,385 \$72,617 \$0 \$86,716

| Line # | Descripti | on | | | | |
|---------------------------------------|------------------------------|------------|----------|-----------|-----|------------------------------|
| | Manhours | Matl | Labor | Equipment | Sub | Total |
| | | | | | | |
| ESTIMATE TOTAL | 676 | \$13,539 | \$13,100 | \$75,431 | \$0 | \$102,070 |
| SALES TAX MATL MARKUP | 0.00% 0.00% | \$0 \$0 | | | | |
| LABOR MARKUP EQUIPT MARKUP | 0.00% 0.00% | · | \$0 | \$0 | | |
| SUB MARKUP | 0.00% | | | | \$0 | |
| TOTAL BEFORE C CONTINGENCY BOND | ONTINGENC 20.00% 0.00% | \$13,539 | \$13,100 | \$75,431 | \$0 | \$102,070 \$20,414 \$0 |
| PROFIT | 10.00% | | | | | \$10,207 |
| JOB TOTAL | | | | | | \$132,691 |

\$20,414

\$10,207

\$132,691

\$0

CONTINGENCY

BOND

PROFIT

JOB TOTAL

Estimate: BLDG 3262 Date: 23-Nov-94
Description: INSTALL INFARED HEATING SYSTEM COST ESTIMATE
Project: LIMITED EEAP(HGR) Bid Date:

Project:

20.00%

0.00%

10.00%

94013.04 FORT BRAGG, N.C. Job #: Location: ***** City indx:Raleigh, NC Sq. footage:

SUMMARY Manhours Matl Labor Equipment Sub Total ____ \$825 U02 SITEWORK 591 U15 MECHANICAL 85 \$11,715 \$2,814 \$0 \$15,354 \$12,714 \$1,385 \$72,617 \$0 \$86,716 TOTAL 676 \$13,539 \$13,100 \$75,431 \$0 \$102,070 SALES TAX 0.00% \$0 MATL MARKUP 0.00% \$0 LABOR MARKUP 0.00% \$0 EQUIPT MARKUP 0.00% \$0 SUB MARKUP 0.00% \$0 \$0 \$102,070 TOTAL BEFORE CONTINGENC \$13,539 \$13,100 \$75,431

LIFE CYCLE COST ANALYSIS SUMMARY ENERGY CONSERVATION INVESTMENT PROGRAM (ECIP) LCCID FY95 (92) INSTALLATION & LOCATION: FORT BRAGG REGION NOS. 4 CENSUS: 3 PROJECT NO. & TITLE: 94013.04 LES: ECO2 - NAT GAS INFRARED HEAT FISCAL YEAR 95 DISCRETE PORTION NAME: ECO ANALYSIS DATE: 12-05-94 ECONOMIC LIFE 20 YEARS PREPARED BY: G.B. LOFLIN 1. INVESTMENT A. CONSTRUCTION COST \$ 71897. 3595. \$ B. SIOH C. DESIGN COST \$ 3595. D. TOTAL COST (1A+1B+1C) \$ 79087. E. SALVAGE VALUE OF EXISTING EQUIPMENT \$ F. PUBLIC UTILITY COMPANY REBATE 0. G. TOTAL INVESTMENT (1D - 1E - 1F) 2. ENERGY SAVINGS (+) / COST (-) DATE OF NISTIR 85-3273-X USED FOR DISCOUNT FACTORS OCT 1994 UNIT COST SAVINGS ANNUAL \$ DISCOUNT DISCOUNTED MWH/YR(2) FUEL \$/ MWH(1) SAVINGS(3) FACTOR(4) SAVINGS (5) -30. \$ 1346. \$ -840. \$ 0. \$ 0. \$ 0. A. ELECT \$ 34.95 B. DIST \$ 19.18 15.08 -1060. -15980. 25813. 18.57 479351. 0. \$ 0. -840. \$ -11286. 0. \$ 0. 0. \$ 0. 476. \$ 13468. C. RESID \$.00 0. 21.02 D. NAT G \$ 13.44 18.58 -209688. E. COAL \$.00 F. PPG \$.00 16.83 0. 17.38 0. M. DEMAND SAVINGS 0. 14.88 N. TOTAL 253683. 3. NON ENERGY SAVINGS(+) / COST(-) A. ANNUAL RECURRING (+/-) \$ 4989. (1) DISCOUNT FACTOR (TABLE A) 14.88 (2) DISCOUNTED SAVING/COST (3A X 3A1) 74234. B. NON RECURRING SAVINGS(+) / COSTS(-) SAVINGS(+) YR DISCNT DISCOUNTED ITEM COST(-) OC FACTR SAVINGS(+)/ (1) (2) (3) COST(-)(4)d. TOTAL 0. C. TOTAL NON ENERGY DISCOUNTED SAVINGS(+)/COST(-)(3A2+3Bd4)\$ 74234. 4. FIRST YEAR DOLLAR SAVINGS 2N3+3A+(3Bd1/(YRS ECONOMIC LIFE))\$ 5. SIMPLE PAYBACK PERIOD (1G/4) 4.29 YEARS 6. TOTAL NET DISCOUNTED SAVINGS (2N5+3C) \$ 327917. 7. SAVINGS TO INVESTMENT RATIO (SIR) = (6 / 1G) =4.15 (IF < 1 PROJECT DOES NOT QUALIFY) 8. ADJUSTED INTERNAL RATE OF RETURN (AIRR): 10.59 %

STUDY: 3354E02A

ENERGY CONSERVATION INVESTMENT PROGRAM (ECIP)

LCCID FY95 (92)

LLATION & LOCATION: FORT BRACE LCCID FY95 (92) INSTALLATION & LOCATION: FORT BRAGG REGION NOS. 4 CENSUS: 3 PROJECT NO. & TITLE: 94013.04 LES: ECO2 - NAT GAS INFRARED HEAT FISCAL YEAR 95 DISCRETE PORTION NAME: ECO ANALYSIS DATE: 12-05-94 ECONOMIC LIFE 20 YEARS PREPARED BY: G.B. LOFLIN 1. INVESTMENT A. CONSTRUCTION COST \$ 103032.

B. SIOH \$ 5152.

C. DESIGN COST \$ 5152.

D. TOTAL COST (1A+1B+1C) \$ 113336. E. SALVAGE VALUE OF EXISTING EQUIPMENT \$
F. PUBLIC UTILITY COMPANY REBATE \$ 0. G. TOTAL INVESTMENT (1D - 1E - 1F) 113336. 2. ENERGY SAVINGS (+) / COST (-) DATE OF NISTIR 85-3273-X USED FOR DISCOUNT FACTORS OCT 1994 UNIT COST SAVINGS ANNUAL \$ DISCOUNT DISCOUNTED FUEL \$/ MWH(1) MWH/YR(2) SAVINGS(3) FACTOR(4) SAVINGS(5) -15980. 479351. 0. -209688. 0. 0. 0. 253683. 3. NON ENERGY SAVINGS(+) / COST(-) A. ANNUAL RECURRING (+/-) 4989. (1) DISCOUNT FACTOR (TABLE A) 14.88 (2) DISCOUNTED SAVING/COST (3A X 3A1) \$ 74234. B. NON RECURRING SAVINGS(+) / COSTS(-) SAVINGS(+) YR DISCNT COST(-) OC FACTR (1) (2) (3) DISCOUNTED ITEM SAVINGS(+)/ COST(-)(4) d. TOTAL 0. C. TOTAL NON ENERGY DISCOUNTED SAVINGS(+)/COST(-)(3A2+3Bd4)\$ 74234. 4. FIRST YEAR DOLLAR SAVINGS 2N3+3A+(3Bd1/(YRS ECONOMIC LIFE))\$ 5. SIMPLE PAYBACK PERIOD (1G/4) 6.14 YEARS 6. TOTAL NET DISCOUNTED SAVINGS (2N5+3C) \$ 327917. 7. SAVINGS TO INVESTMENT RATIO (SIR) = (6 / 1G) =2.89 (IF < 1 PROJECT DOES NOT OUALIFY) 8. ADJUSTED INTERNAL RATE OF RETURN (AIRR): 8.62 %

LIFE CYCLE COST ANALYSIS SUMMARY

______ BLDG 3354 Date: 23-Nov-94 INSTALL INFARED HEATING SYSTEM COST ESTIMATE Description: LIMITED EEAP(HGR) Bid Date: Project: FORT BRAGG, N.C. Job #: 94013.04 Location: City indx:Raleigh, NC Sq. footage: Line # Description Manhours Matl Labor Equipment Sub ______ PAVEMENT REMOVAL, BITUMINOUS, 4" TO 6" THICK 0205541750 30.00 S.Y. Unit values 0.00 1.73 0.10 2.50 0.00 4.23 Totals 2.85 \$0 \$52 \$75 \$0 \$127 0205543200 SITE REMOVAL, STEEL PIPE, WELDED CONNECTION, UP TO 4"DIAMETER 1600.00 L.F. Unit values 0.15 0.00 3.68 2.61 1.06 0.00 Totals 240.00 \$0 \$4,180 \$1,702 \$0 \$5,882 0207180380 HVAC DEMO, BOILER GAS/OIL STL >150MBH (qty) Ea. Unit values 12.00 0.00 268.07 0.00 0.00 268.07 Totals 0.00 \$0 \$0 \$0 \$0 \$0 0207183600 HVAC DEMO, MECH EQPT HEAVY ITEM 1.50 Ton 0.00 Unit values 14.55 314.87 0.00 0.00 314.87 Totals 21.82 \$0 \$472 \$0 \$0 \$472 0208400600 REMOVE PIPE INSULATION UP TO 4" DIAMETER PIPE 1400.00 L.F. Unit values 0.07 0.00 1.63 0.20 0.00 1.83 Totals \$274 99.40 \$0 \$2,287 \$0 \$2,561 REMOVE INSULATION FROM PIPE FITTING, UP TO 4" 0208401000 DIAMETER PIPE 160.00 Ea. Unit values 0.20 0.00 4.60 0.56 0.00 5.16 Totals 32.00 \$0 \$735 \$90 \$0 \$825 0222541900 TAMPING TRENCH B'FILL, VIBRATING PLATE, ADD 15.00 C.Y. Unit values 0.09 0.00 1.44 0.55 0.00 1.99 Totals 1.34 \$0 \$22 \$8 \$0 \$30 0222582800 TRENCH EXCVTNG 40HP CHNTRNCHR&BKFL 12"W24"D 200.00 L.F. Unit values 0.01 0.00 0.20 0.20 0.00 0.39 Totals 2.00 \$0 \$39 \$39 \$0 \$78 0251040380 ASPHALTIC CONCRETE PAVEMENT, PAVING, WEARING

| | COTTREE 311 | TUTCY | | | 30.00 S | v |
|-----------------------|-----------------------------|------------|-------------|-------------|-------------|---------|
| Unit values | 0 02 | 2 96 | 0 27 | 0.25 | 0.00 5 | 3.48 |
| Totals | 0.02 | 2.90 | 0.27 \$8 | 0.23 \$7 | \$0 | \$104 |
| iocais | 0.45 | ÇOJ | ΨO | Ψ, | <i>4</i> 0 | Ų I V I |
| 0260120200 | | OR PIPE IN | TRENCH SA | ND, DEAD OF | | |
| | BANK | 2 72 | 0 50 | | 8.00 C | |
| Unit values Totals | 0.16 | 3.79 | 2.79 | 1.13 | 0.00 | 7.71 |
| Totals | 1.28 | \$30 | \$22 | \$9 | \$0 | \$61 |
| 0260120500 | BEDDING, P | LACING IN | TRENCH | | | |
| 1 3. | | 2 22 | | | 8.00 C. | Υ. |
| Unit values | 0.09 | 0.00 | 1.44 | 0.55 | 0.00 | 1.99 |
| Totals | 0.71 | ŞU | \$12 | \$4 | \$0 | \$16 |
| 0266907800 | CUT IN VAL | VES, W/DUC | K TIP GASK | ET, 4" DIAN | | |
| 1. | | | | | 1.00 Ea | l. |
| Unit values | 1.56 | 404.00 | 29.36 | 4.89 | 0.00 | 438.25 |
| Totals | 1.56 | \$404 | \$29 | \$5 | \$0 | \$438 |
| 0268520150 | GAS SERVIC | E & DISTRI | B PIPING, P | OLYETHYLENE | E,60- | |
| | PSI 1-1/4" 0.06 | DIAM SDR 1 | 0,COIL | | 210,00 L. | F. |
| <u>U</u> nit values | 0.06 | 0.63 | 1.10 | 0.00 | 0.00 | 1.72 |
| Totals | 12.60 | \$132 | \$231 | \$0 | \$ 0 | \$363 |
| 0268520600 | GAS SERVIC | E&DISTRIB | PIPING, SCH | 40 STEEL PI | AIN | |
| | END, TAR CO 0.11 5.70 | AT&WRAP 1- | 1/4" DIAM | | 50.00 L. | F. |
| Unit values | 0.11 | 3.40 | 2.63 | 0.15 | 0.00 | 6.19 |
| Totals | 5.70 | \$170 | \$131 | \$8 | \$0 | \$309 |

Totals

1562600137

Unit values

U15 MECHANICAL

1.00 Ea.

234.91

\$44,039

\$235

0.00

\$0

\$0

| | ======== | ======= | ======= | ========== | ====== | ======== |
|-----------------------|-------------|---------|---------|----------------------|--------|----------------------|
| Line # | Description | n | | | | |
| | Manhours | Matl | Labor | Equipment | Sub | Total |
| | | | | | | ======= |
| U02 SITEWORK | 422 | \$825 | \$8,220 | \$2,221 | \$0 | \$11,266 |
| 1554510245 | HTG CO-RAY | | | GAS ELEC IGN | 1.00 | TC |
| Unit values Totals | 0.00 | 0.00 | 0.00 | 43804.00 \$43,804 | 0.00 | 43804.00 \$43,804 |

GAS APPLIANCE REGULATORS DOUBLE DIAPHRAGM

9.14

\$9

\$9

0.00

\$43,804

\$0

TYPE 1-1/4" PIPE SIZE 0.53 225.77

\$226

\$226

0.53

1

| ======================================= | ======== | ======= | | | | ======= |
|--|--|------------|---------|-----------|-----|--|
| Line # | Description | on | | | | |
| | Manhours | Matl | Labor | Equipment | Sub | Total |
| *========= | ========= | | ======= | | | ======= |
| ESTIMATE TOTAL | 423 | \$1,051 | \$8,229 | \$46,025 | \$0 | \$55,305 |
| SALES TAX MATL MARKUP LABOR MARKUP | 0.00% 0.00% 0.00% | \$0 \$0 | \$0 | | | |
| EQUIPT MARKUP SUB MARKUP | 0.00% | | 40 | \$0 | \$0 | |
| TOTAL BEFORE CONTINGENCY BOND PROFIT | ONTINGENC 20.00% 0.00% 10.00% | \$1,051 | \$8,229 | \$46,025 | \$0 | \$55,305 \$11,061 \$0 \$5,531 |
| JOB TOTAL | | | | | | \$71,897 |

Estimate: BLDG 3354 Date: 23-Nov-94
Description: INSTALL INFARED HEATING SYSTEM COST ESTIMATE
Project: LIMITED EEAP(HGR) Bid Date:

Location: FORT BRAGG, N.C. Job #: 94013.04 Sq. footage: ****** City indx:Raleigh, NC

| | Si | JMMARY | | ========= | | ========= |
|--|--|----------------|----------------|---------------------|------------|--|
| | Manhours | Matl | Labor | Equipment | Sub | Total |
| | | | | | | ======= |
| U02 SITEWORK U15 MECHANICAL | 422 | \$825 \$226 | \$8,220 \$9 | \$2,221 \$43,804 | \$0 \$0 | \$11,266 \$44,039 |
| TOTAL | 423 | \$1,051 | \$8,229 | \$46,025 | \$0 | \$55,305 |
| SALES TAX MATL MARKUP LABOR MARKUP | 0.00% 0.00% 0.00% | \$0 \$0 | \$0 | | | |
| EQUIPT MARKUP SUB MARKUP | 0.00% | | ÇÜ | \$0 | \$0 | |
| TOTAL BEFORE CO CONTINGENCY BOND PROFIT | ONTINGENC 20.00% 0.00% 10.00% | \$1,051 | \$8,229 | \$46,025 | \$0 | \$55,305 \$11,061 \$0 \$5,531 |
| JOB TOTAL | | | | | | \$71,897 |

ENERGY CONSERVATION INVESTMENT PROGRAM (ECIP)

ALLATION & LOCATION FORT PRACE LCCID FY95 (92) INSTALLATION & LOCATION: FORT BRAGG REGION NOS. 4 CENSUS: 3 PROJECT NO. & TITLE: 94013.04 LES: ECO2 - NAT GAS INFRARED HEAT FISCAL YEAR 95 DISCRETE PORTION NAME: ECO ANALYSIS DATE: 12-12-94 ECONOMIC LIFE 20 YEARS PREPARED BY: G.B. LOFLIN 1. INVESTMENT A. CONSTRUCTION COST 75196. 3760. 3760. B. SIOH C. DESIGN COST D. TOTAL COST (1A+1B+1C) \$ 82716. E. SALVAGE VALUE OF EXISTING EQUIPMENT \$ F. PUBLIC UTILITY COMPANY REBATE G. TOTAL INVESTMENT (1D - 1E - 1F) 82716. 2. ENERGY SAVINGS (+) / COST (-) DATE OF NISTIR 85-3273-X USED FOR DISCOUNT FACTORS OCT 1994 UNIT COST SAVINGS ANNUAL \$ DISCOUNT DISCOUNTED SAVINGS(3) FACTOR(4) SAVINGS(5) FUEL \$/ MWH(1) MWH/YR(2) 27. 943. 15.08 A. ELECT \$ 34.95 14220. 1045. 0. -574. \$ 20049. \$ 0. \$ -7717. \$ 0. \$ 0. \$ 13275. B. DIST \$ 19.18 C. RESID \$.00 D. NAT G \$ 13.44 18.57 372311. 0. 21.02 \$ -143389. 18.58 16.83 0. E. COAL \$.00 0. .00 17.38 F. PPG \$ 0. 0. 14.88 M. DEMAND SAVINGS 0. 498. 243142. N. TOTAL 3. NON ENERGY SAVINGS(+) / COST(-) A. ANNUAL RECURRING (+/-) \$ 100. (1) DISCOUNT FACTOR (TABLE A) 14.88 (2) DISCOUNTED SAVING/COST (3A X 3A1) 1488. B. NON RECURRING SAVINGS (+) / COSTS (-) SAVINGS(+) YR COST(-) OC DISCNT DISCOUNTED FACTR SAVINGS(+)/ ITEM (1) (2) (3) COST(-)(4)d. TOTAL \$ 0. C. TOTAL NON ENERGY DISCOUNTED SAVINGS(+)/COST(-)(3A2+3Bd4)\$ 1488. 4. FIRST YEAR DOLLAR SAVINGS 2N3+3A+(3Bd1/(YRS ECONOMIC LIFE))\$ 13375. 6.18 YEARS 5. SIMPLE PAYBACK PERIOD (1G/4) \$ 244630. 6. TOTAL NET DISCOUNTED SAVINGS (2N5+3C) 7. SAVINGS TO INVESTMENT RATIO
(IF < 1 PROJECT DOES NOT QUALIFY) (SIR) = (6 / 1G) =2.96 8.74 % 8. ADJUSTED INTERNAL RATE OF RETURN (AIRR):

LIFE CYCLE COST ANALYSIS SUMMARY

ENERGY CONSERVATION INVESTMENT PROGRAM (ECIP)

INSTALLATION & LOCATION: FORT BRAGG REGION NOS. 4 CENSUS: 3 PROJECT NO. & TITLE: 94013.04 LES: ECO2 - NAT GAS INFRARED HEAT FISCAL YEAR 95 DISCRETE PORTION NAME: ECO ANALYSIS DATE: 12-12-94 ECONOMIC LIFE 20 YEARS PREPARED BY: G.B. LOFLIN 1. INVESTMENT A. CONSTRUCTION COST \$ 106331. 5317. B. SIOH C. DESIGN COST 5317. D. TOTAL COST (1A+1B+1C) \$ 116965. E. SALVAGE VALUE OF EXISTING EQUIPMENT \$ 0. 0. F. PUBLIC UTILITY COMPANY REBATE 116965. G. TOTAL INVESTMENT (1D - 1E - 1F) 2. ENERGY SAVINGS (+) / COST (-) DATE OF NISTIR 85-3273-X USED FOR DISCOUNT FACTORS OCT 1994 UNIT COST SAVINGS ANNUAL \$ DISCOUNT DISCOUNTED \$/MWH(1) MWH/YR(2) SAVINGS(3) FACTOR(4) SAVINGS(5) 27. 943. 15.08 14220. A. ELECT \$ 34.95 B. DIST \$ 19.18 20049. 18.57 372311. 1045. Ο. C. RESID \$.00 0. 21.02 0. -574. D. NAT G \$ 13.44 -7717. 18.58 -143389. 0. 0. E. COAL \$.00 Ο. 16.83 0. 0. F. PPG \$.00 0. 17.38 0. M. DEMAND SAVINGS 14.88 0. 243142. 498. N. TOTAL 13275. 3. NON ENERGY SAVINGS (+) / COST (-) A. ANNUAL RECURRING (+/-) \$ 100. (1) DISCOUNT FACTOR (TABLE A) 14.88 (2) DISCOUNTED SAVING/COST (3A X 3A1) Ś 1488. B. NON RECURRING SAVINGS(+) / COSTS(-) SAVINGS(+) YR COST(-) OC DISCOUNTED DISCNT COST(-) ITEM FACTR SAVINGS(+)/ (2) (1) (3) COST(-)(4)\$ 0. 0. d. TOTAL C. TOTAL NON ENERGY DISCOUNTED SAVINGS(+)/COST(-)(3A2+3Bd4)\$ 1488. 4. FIRST YEAR DOLLAR SAVINGS 2N3+3A+(3Bd1/(YRS ECONOMIC LIFE))\$ 13375. 8.75 YEARS 5. SIMPLE PAYBACK PERIOD (1G/4) \$ 244630. 6. TOTAL NET DISCOUNTED SAVINGS (2N5+3C) (SIR) = (6 / 1G) =2.09 7. SAVINGS TO INVESTMENT RATIO (IF < 1 PROJECT DOES NOT QUALIFY) 6.87 % 8. ADJUSTED INTERNAL RATE OF RETURN (AIRR):

| Estimate: Description: Project: Location: Sq. footage: | LIMITED EE. FORT BRAGG | FARED HEA AP(HGR) I , N.C. S | ATING SYST | 94013.04 Raleigh, NC | | |
|--|------------------------|------------------------------------|-----------------|-------------------------|-------------------|-----------------|
| Line # | Description | | | | | |
| | Manhours | | Labor | Equipment | Sub | Total |
| ======================================= | | ======= | | | | |
| 0205541750 | PAVEMENT R | EMOVAL, E | BITUMINOUS | , 4" TO 6" | THICK 20.00 | c v |
| Unit values Totals | 0.10 1.90 | 0.00 \$0 | 1.73 \$35 | 2.50 \$50 | 0.00 | 4.23 \$85 |
| 0205543200 | UP TO 4"D | TAMETED | | ED CONNECTI | 1000 00 | |
| Unit values Totals | 0.15 150.00 | 0.00 \$0 | 2.61 \$2,613 | 1.06 \$1,064 | 0.00 \$0 | 3.68 \$3,677 |
| 0207180380 | HVAC DEMO, | BOILER GA | AS/OIL STL | >150MBH | 1.00 | E a |
| Unit values Totals | 12.00 12.00 | 0.00 \$0 | 268.07 \$268 | 0.00 \$0 | 0.00 | 268.07 \$268 |
| 0207183600 | HVAC DEMO, | MECH EQPI | T HEAVY IT | EM | 1.00 | Ton |
| Unit values Totals | 14.55 14.55 | 0.00 \$0 | 314.87 \$315 | | 0.00 | 314.87 \$315 |
| 0208400600 | REMOVE PIP | E INSULAT | TION UP TO | 4" DIAMETE | R PIPE 1000.00 | ī. F |
| Unit values Totals | 0.07 71.00 | 0.00 \$0 | 1.63 \$1,634 | 0.20 \$196 | 0.00 | 1.83 |
| 0208401000 | DIAMETER P | TPF. | | | 125.00 | Ea. |
| Unit values Totals | 0.20 25.00 | 0.00 \$0 | 4.60 \$574 | 0.56 \$70 | 0.00 | 5.16 \$644 |
| 0222541900 | | | · | | 15.00 | С. Ү. |
| Unit values Totals | 0.09 1.34 | 0.00 \$0 | 1.44 \$22 | 0.55 \$8 | 0.00 | 1.99 |
| 0222582800 | TRENCH EXC | VTNG 40H | CHNTRNCH | R&BKFL 12"W | 24"D 150.00 | I.F. |
| Unit values Totals | 0.01 1.50 | 0.00 \$0 | 0.20 \$29 | 0.20 \$29 | 0.00 | 0.39 |
| 0251040380 | ASPHALTIC | CONCRETE | PAVEMENT, | PAVING, WE | ARING | |

| Unit values Totals | COURSE, 2" T 0.02 0.30 | THICK 2.96 \$59 | 0.27 \$5 | 0.25 | 20.00 S. 0.00 \$0 | 3.48 \$69 |
|-----------------------|-------------------------------|-----------------------|---------------|-------------|-------------------------|-----------------|
| 0260120200 | | PIPE IN | TRENCH SAI | ND, DEAD OR | 2.50 C | Y |
| Unit values Totals | BANK 0.16 0.40 | 3.79 \$9 | 2.79 \$7 | 1.13 \$3 | 0.00 | 7.71 |
| 0260120500 | BEDDING, PLA | CING IN T | TRENCH | | 2.50 C. | v |
| Unit values Totals | 0.09 0.22 | 0.00 \$0 | 1.44 | 0.55 | 0 00 | 1 99 |
| 0266907800 | | | | | | |
| Unit values Totals | 1.56 1.56 | 04.00 \$404 | 29.36 \$29 | 4.89 \$5 | 1.00 Ea 0.00 \$0 | 438.25 \$438 |
| 0268520150 | GAS SERVICE | & DISTRIE | PIPING, PO | OLYETHYLENE | ,60- | P |
| Unit values Totals | PSI 1-1/4"DI 0.06 9.60 | 0.63 \$100 | 1.10 \$176 | 0.00 \$0 | 0.00 | 1.72 \$276 |
| 0268520600 | GAS SERVICES | DISTRIB I | PIPING, SCH | 40 STEEL PL | AIN | F |
| Unit values Totals | END, TAR COAT 0.11 5.70 | 3.40 \$170 | 2.63 \$131 | 0.15 \$8 | 0.00 | 6.19 \$309 |

| ======================================= | | | | | | |
|---|-------------|----------------------|------------|--------------------------|---------------------|----------------------|
| Line # | Description | on | | | | |
| | Manhours | Matl | Labor | Equipment | Sub | Total |
| ======================================= | ======== | | .====== | | | |
| U02 SITEWORK | 296 | \$742 | \$5,842 | \$1,439 | \$0 | \$8,023 |
| 1551153320 | HTG BR GAS | S CI STD H | ITWR GOP 2 | 2000 MBH | 1.00 | Pa |
| Unit values Totals | | 12487.50 \$12,488 | | 0.00 \$0 | 0.00 | 13863.88 \$13,864 |
| 1554510245 | | | | GAS ELEC IGN details) | | T.S |
| Unit values Totals | | 0.00 | 0.00 | 35721.00 \$35,721 | 0.00 | 35721.00 \$35,721 |
| 1562600137 | | | | JBLE DIAPHRA | | n - |
| Unit values Totals | | 225.77 \$226 | 9.14 | 0.00 \$0 | 1.00 0.00 \$0 | 234.91 |
| III 5 MECHANICAL | 85 | \$12.714 | \$1.385 | \$35.721 | \$0 | \$49.820 |

| ======================================= | ======= | ======= | ======= | | ======== | ======= |
|--|------------------------------|------------|---------|-------------|----------|--|
| Line # | Descripti | on | | | | |
| | Manhours | Matl | Labor | Equipment | Sub | Total |
| ======================================= | ======== | ======= | | | | |
| ESTIMATE TOTAL | 381 | \$13,456 | \$7,227 | \$37,160 | \$0 | \$57,843 |
| SALES TAX MATL MARKUP LABOR MARKUP | 0.00% 0.00% 0.00% | \$0 \$0 | \$0 | \$ 0 | | |
| EQUIPT MARKUP SUB MARKUP | 0.00% 0.00% | | | \$0 | \$0 | |
| CONTINGENCY BOND | ONTINGENC 20.00% 0.00% | \$13,456 | \$7,227 | \$37,160 | \$0 | \$57,843 \$11,569 \$0 \$5,784 |
| | 10.00% | | | | | \$75,196 |
| CONTINGENCY | 20.00% | \$13,456 | \$7,227 | \$37,160 | \$0 | \$11,569 \$0 \$5,784 |

JOB TOTAL

Estimate: BLDG 3637 Date: 23-Nov-94

Description: INSTALL INFARED HEATING SYSTEM COST ESTIMATE Project: LIMITED EEAP(HGR) Bid Date:

Project: LIMITED EEAP(HGR) Bid Dat Location: FORT BRAGG, N.C. Job #: Sq. footage: ****** City in 94013.04 City indx:Raleigh, NC

| ======================================= | ======== S | ====== UMMARY | ======= | | | |
|---|--|-------------------|--------------------|---------------------|------------|--|
| | Manhours | Matl | Labor | Equipment | Sub | Total |
| | ======= | ======= | | == | | |
| U02 SITEWORK U15 MECHANICAL | 296 85 | \$742 \$12,714 | \$5,842 \$1,385 | \$1,439 \$35,721 | \$0 \$0 | \$8,023 \$49,820 |
| TOTAL | 381 | \$13,456 | \$7,227 | \$37,160 | \$0 | \$57,843 |
| SALES TAX MATL MARKUP LABOR MARKUP EQUIPT MARKUP | 0.00% 0.00% 0.00% 0.00% | \$0 \$0 | \$0 | \$0 | | |
| SÜB MARKUP | 0.00% | | | | \$0 | |
| TOTAL BEFORE C CONTINGENCY BOND PROFIT | ONTINGENC 20.00% 0.00% 10.00% | \$13,456 | \$7,227 | \$37,160 | \$0 | \$57,843 \$11,569 \$0 \$5,784 |

\$75,196

LIFE CYCLE COST ANALYSIS SUMMARY STUDY: 3642E02A
ENERGY CONSERVATION INVESTMENT PROGRAM (ECIP) LCCID FY95 (92)
INSTALLATION & LOCATION: FORT BRAGG REGION NOS. 4 CENSUS: 3 PROJECT NO. & TITLE: 94013.04 LES: ECO2 - NAT GAS INFRARED HEAT FISCAL YEAR 95 DISCRETE PORTION NAME: ECO ANALYSIS DATE: 12-05-94 ECONOMIC LIFE 20 YEARS PREPARED BY: G.B. LOFLIN 1. INVESTMENT A. CONSTRUCTION COST 81151. B. SIOH 4058. 4058. C. DESIGN COST C. DESIGN COST \$
D. TOTAL COST (1A+1B+1C) \$ 89267. E. SALVAGE VALUE OF EXISTING EQUIPMENT \$ F. PUBLIC UTILITY COMPANY REBATE 89267. G. TOTAL INVESTMENT (1D - 1E - 1F) 2. ENERGY SAVINGS (+) / COST (-) DATE OF NISTIR 85-3273-X USED FOR DISCOUNT FACTORS OCT 1994 UNIT COST SAVINGS ANNUAL \$ DISCOUNT DISCOUNTED \$/ MWH(1) MWH/YR(2) SAVINGS(3) FACTOR(4) SAVINGS(5) DISCOUNTED A. ELECT \$ 34.95
B. DIST \$ 19.18
C. RESID \$.00
D. NAT G \$ 13.44
C. COAL \$.00
F. PPG \$.00
D. M. DEMAND SAVINGS
N. TOTAL

6. \$ 226.
28273.
28273.
0. \$ 0.
0. \$ 0.
0. \$ 0.
0. \$ 0.
0. \$ 0.
14811. 15.08 3410. 525027. 18.57 21.02 0. 18.58 16.83 17.38 \$ -254325. 0. 0. Ο. 14.88 0. 274112. 3. NON ENERGY SAVINGS(+) / COST(-) \$ 843. A. ANNUAL RECURRING (+/-) (1) DISCOUNT FACTOR (TABLE A) 14.88 (2) DISCOUNTED SAVING/COST (3A X 3A1) 12545. B. NON RECURRING SAVINGS (+) / COSTS (-) SAVINGS(+) YR DISCNT
COST(-) OC FACTR
(1) (2) (3) DISCOUNTED SAVINGS(+)/ TTEM COST(-)(4)d. TOTAL \$. 0. C. TOTAL NON ENERGY DISCOUNTED SAVINGS(+)/COST(-)(3A2+3Bd4)\$ 12545. 4. FIRST YEAR DOLLAR SAVINGS 2N3+3A+(3Bd1/(YRS ECONOMIC LIFE))\$ 15654. 5.70 YEARS 5. SIMPLE PAYBACK PERIOD (1G/4) \$ 286657. 6. TOTAL NET DISCOUNTED SAVINGS (2N5+3C) (SIR) = (6 / 1G) =7. SAVINGS TO INVESTMENT RATIO 3.21 (IF < 1 PROJECT DOES NOT QUALIFY) 9.19 % 8. ADJUSTED INTERNAL RATE OF RETURN (AIRR):

LIFE CYCLE COST ANALYSIS SUMMARY STUDY: 3642E02B ENERGY CONSERVATION INVESTMENT PROGRAM (ECIP) LCCID FY95 (92) INSTALLATION & LOCATION: FORT BRAGG REGION NOS. 4 CENSUS: 3 PROJECT NO. & TITLE: 94013.04 LES: ECO2 - NAT GAS INFRARED HEAT FISCAL YEAR 95 DISCRETE PORTION NAME: ECO ANALYSIS DATE: 12-05-94 ECONOMIC LIFE 20 YEARS PREPARED BY: G.B. LOFLIN 1. INVESTMENT A. CONSTRUCTION COST \$ 112286. 5614. \$ B. SIOH C. DESIGN COST \$ 5614. D. TOTAL COST (1A+1B+1C) \$ 123514. 0. 0. E. SALVAGE VALUE OF EXISTING EQUIPMENT \$ F. PUBLIC UTILITY COMPANY REBATE 123514. G TOTAL INVESTMENT (1D - 1E - 1F) 2. ENERGY SAVINGS (+) / COST (-) DATE OF NISTIR 85-3273-X USED FOR DISCOUNT FACTORS OCT 1994 UNIT COST SAVINGS ANNUAL \$ DISCOUNT \$/MWH(1) MWH/YR(2) SAVINGS(3) FACTOR(4) DISCOUNTED FACTOR(4) SAVINGS(5) FUEL A. ELECT \$ 34.95
E. DIST \$ 19.18
C. RESID \$.00
D. NAT G \$ 13.44
F. COAL \$.00
F. PPG \$.00
D. M. DEMAND SAVINGS
N. TOTAL

6. \$ 226.
\$ 2273.
C. \$ 28273.
C. \$ 28273.
C. \$ 0.
C 226. 15.08 3410. 18.57 525027. 21.02 0. 18.58 \$ -254325. 0. 16.83 17.38 0. 0. 14.88 274112. 3. NON ENERGY SAVINGS(+) / COST(-) \$ 843. A. ANNUAL RECURRING (+/-) (1) DISCOUNT FACTOR (TABLE A) 14.88 12545. (2) DISCOUNTED SAVING/COST (3A X 3A1) B. NON RECURRING SAVINGS(+) / COSTS(-) SAVINGS(+) YR DISCNT DISCOUNTED COST(-) OC FACTR SAVINGS(+)/ ITEM (2) COST(-)(4)(1) (3) d. TOTAL Ŝ 0. C. TOTAL NON ENERGY DISCOUNTED SAVINGS(+)/COST(-)(3A2+3Bd4)\$ 12545. 4. FIRST YEAR DOLLAR SAVINGS 2N3+3A+(3Bd1/(YRS ECONOMIC LIFE))\$ 15654. 7.89 YEARS 5. SIMPLE PAYBACK PERIOD (1G/4) 6. TOTAL NET DISCOUNTED SAVINGS (2N5+3C) \$ 286657. 7. SAVINGS TO INVESTMENT RATIO (SIR) = (6 / 1G) =2.32 (IF < 1 PROJECT DOES NOT QUALIFY) 7.43 % 8. ADJUSTED INTERNAL RATE OF RETURN (AIRR):

| | | ======= | | | .======= | |
|---|---------------------|------------------------------------|-----------------|---|--------------------|-----------------|
| Estimate: Description: Project: Location: Sq. footage: ==================================== | FORT BRAC ****** | NFARED HE EEAP(HGR) EG, N.C. | JOD #: | 23-Nov-94 FEM COST ES 94013.04 :Raleigh, N | | |
| Line # | | | | | | |
| | Manhours | Matl | Labor | Equipment | Sub | Total |
| ======================================= | ======= | ======== | ======== | ======= | .======: | |
| 0205541750 | PAVEMENT | REMOVAL, | BITUMINOU | S, 4" TO 6" | THICK | S.Y. |
| Unit values Totals | 0.10 2.85 | 0.00 \$0 | 1.73 \$52 | 2.50 \$75 | 0.00 | 4.23 \$127 |
| 0205543200 | SITE REMO | OVAL, STEE | L PIPE,WEL | DED CONNECT | TION, 1600.00 | T.F. |
| Unit values Totals | 0.15 240.00 | 0.00 | 2.61 \$4,180 | 1.06 \$1,702 | 0.00 | 3.68 \$5,882 |
| 0207180380 | HVAC DEMO | D,BOILER (| GAS/OIL ST | L >150MBH | (gty) | Fa |
| Unit values Totals | | 0.00 \$0 | | 0.00 \$0 | 0.00 | 268.07 \$0 |
| 0207183600 | HVAC DEMO | O, MECH EQ | PT HEAVY I | TEM | 1 50 | Ton |
| Unit values Totals | | 0.00 \$0 | 314.87 \$472 | 0.00 \$0 | 0.00 | 314.87 \$472 |
| 0208400600 | | | | | 1400 00 | L.F. |
| Unit values Totals | 0.07 99.40 | 0.00 \$0 | 1.63 \$2,287 | 0.20 \$274 | 0.00 | 1.83 \$2,561 |
| 0208401000 | REMOVE II | NSULATION PIPE | FROM PIPE | FITTING, U | JP TO 4" 160.00 | Ea. |
| Unit values Totals | 0.20 | 0.00 | 4.60 \$735 | 0.56 \$90 | 0.00 | 5.16 |
| 0222541900 | TAMPING T | TRENCH B' | FILL, VIBR | ATING PLATE | E, ADD 15.00 | C.Y. |
| Unit values Totals | 0.09 1.34 | | 1.44 \$22 | 0.55 \$8 | 0.00 | 1.99 |
| 0222582800 | TRENCH E | XCVTNG 40 | HP CHNTRNC | HR&BKFL 12' | "W24"D 200.00 | L.F. |
| Unit values Totals | 0.01 | | | 0.20 \$39 | 0.00 | 0.39 |
| 0251040380 | ASPHALTI | C CONCRET | E PAVEMENT | , PAVING, V | WEARING | |

| Unit values Totals | COURSE, 2" 0.02 0.45 | THICK 2.96 \$89 | 0.27 \$8 | 0.25 \$7 | 30.00 S.Y 0.00 \$0 | 3.48 |
|-----------------------|------------------------------|-----------------------|---------------|-------------|--------------------------|---------------|
| 0260120200 | BEDDING, FO | | | | 8.00 C.Y | |
| Unit values Totals | 0.16 1.28 | 3.79 \$30 | 2.79 \$22 | 1.13 \$9 | 0.00 | |
| 0260120500 | BEDDING, PI | ACING IN | TRENCH | | 8.00 C.Y | 7 |
| Unit values Totals | 0.09 0.71 | 0.00 \$0 | 1.44 \$12 | 0.55 \$4 | 0.00 | 1.99 |
| 0266907800 | CUT IN VALV | ES, W/DUC | K TIP GASKI | ET, 4" DIAN | METER 1.00 Ea. | |
| Unit values Totals | 1.56 1.56 | 404.00 \$404 | 29.36 \$29 | 4.89 \$5 | 0.00 | 438.25 |
| 0268520150 | GAS SERVICE | E & DISTRI | B PIPING, PO | OLYETHYLEN | E,60- 210.00 L.H | ₹. |
| Unit values Totals | PSI 1-1/4"I 0.06 12.60 | 0.63 \$132 | 1.10 \$231 | 0.00 \$0 | 0.00 | 1.72 \$363 |
| 0268520600 | GAS SERVICE | E&DISTRIB | PIPING, SCH | 40 STEEL PI | CAIN 50.00 L.H | ٠ - ٢ |
| Unit values Totals | END, TAR COA 0.11 5.70 | 3.40 \$170 | 2.63 \$131 | 0.15 \$8 | 0.00 | 6.19 \$309 |

| Line # | Description | n | | | | | |
|---|--------------------------|------------------------|-----------------|-----------------------|-------------|----------------------|--|
| | Manhours | Matl | Labor | Equipment | Sub | Total | |
| ======================================= | ======= | ======= | ====== | | | | |
| U02 SITEWORK | 422 | \$825 | \$8,220 | \$2,221 | \$0 | \$11,266 | |
| 1554510245 | HTG CO-RAY | -VAC INFA hed Estim | -RD UNT ate for | GAS ELEC IGN details) | 1.00 | LS | |
| Unit values Totals | | 0.00 \$0 | 0.00 | 50923.00 \$50,923 | 0.00 \$0 | 50923.00 \$50,923 | |
| 1562600137 | GAS APPLIA TYPE 1-1/4 | NCE REGUL | | UBLE DIAPHRAC | M 1.00 | Ea. | |
| Unit values Totals | 0.53 | | 9.14 | 0.00 \$0 | 0.00 \$0 | 234.91 \$235 | |
| U15 MECHANICAL | 1 | \$226 | \$9 | \$50,923 | \$0 | \$51,158 | |

| | ========= | ======= | ======= | | | ======= |
|---|---|------------|---------|-----------|-----|--|
| Line # | Description | on | | | | |
| | Manhours | Matl | Labor | Equipment | Sub | Total |
| | :======== | | | | | |
| ESTIMATE TOTAL | 423 | \$1,051 | \$8,229 | \$53,144 | \$0 | \$62,424 |
| SALES TAX MATL MARKUP LABOR MARKUP EQUIPT MARKUP SUB MARKUP | 0.00% 0.00% 0.00% 0.00% 0.00% | \$0 \$0 | \$0 | \$0 | \$0 | |
| TOTAL BEFORE C CONTINGENCY BOND PROFIT | CONTINGENC 20.00% 0.00% 10.00% | \$1,051 | \$8,229 | \$53,144 | \$0 | \$62,424 \$12,485 \$0 \$6,242 |
| JOB TOTAL | | | | | | \$81,151 |

\$81,151

________ Estimate: BLDG 3642 Date: 23-Nov-94
Description: INSTALL INFARED HEATING SYSTEM COST ESTIMATE
Project: LIMITED EEAP(HGR) Bid Date:
Location: FORT BRAGG, N.C. Job #: 94013.04
Sq. footage: ******* City indx:Raleigh, NC

JOB TOTAL

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| | St | MMARY | | | | |
|---|--|----------------|----------------|---------------------|------------|--|
| | Manhours | Matl | Labor | Equipment | Sub | Total |
| | | | | | | |
| U02 SITEWORK U15 MECHANICAL | 422 1 | \$825 \$226 | \$8,220 \$9 | \$2,221 \$50,923 | \$0 \$0 | \$11,266 \$51,158 |
| TOTAL | 423 | \$1,051 | \$8,229 | \$53,144 | \$0 | \$62,424 |
| SALES TAX MATL MARKUP LABOR MARKUP | 0.00% 0.00% 0.00% | \$0 \$0 | \$0 | | | |
| EQUIPT MARKUP SUB MARKUP | 0.00% 0.00% | | | \$0 | \$0 | |
| TOTAL BEFORE C CONTINGENCY BOND PROFIT | ONTINGENC 20.00% 0.00% 10.00% | \$1,051 | \$8,229 | \$53,144 | \$0 | \$62,424 \$12,485 \$0 \$6,242 |
| | | | | | | |

LIFE CYCLE COST ANALYSIS SUMMARY

ENERGY CONSERVATION INVESTMENT PROGRAM (ECIP)

INSTALLATION & LOCATION: FORT BRAGG REGION NOS. 4 CENSUS: 3 PROJECT NO. & TITLE: 94013.04 LES: ECO2 - NAT GAS INFRARED HEAT FISCAL YEAR 95 DISCRETE PORTION NAME: ECO 12-12-94 ECONOMIC LIFE 20 YEARS PREPARED BY: G.B. LOFLIN ANALYSIS DATE: 1. INVESTMENT A. CONSTRUCTION COST \$ 156150.

B. SIOH \$ 7808.

C. DESIGN COST \$ 7808.

D. TOTAL COST (1A+1B+1C) \$ 171766. E. SALVAGE VALUE OF EXISTING EQUIPMENT \$ 0. 0. F. PUBLIC UTILITY COMPANY REBATE 171766. G. TOTAL INVESTMENT (1D - 1E - 1F) 2. ENERGY SAVINGS (+) / COST (-) DATE OF NISTIR 85-3273-X USED FOR DISCOUNT FACTORS OCT 1994 UNIT COST SAVINGS ANNUAL \$ DISCOUNT DISCOUNTED \$/ MWH(1) MWH/YR(2) SAVINGS(3) FACTOR(4) SAVINGS(5) FUEL 19. \$ 46042.
0. \$ 0.
-1438. \$ -19322.
0. \$ 0.
0. \$ 0.
982. \$ 27384. A. ELECT \$ 34.95 B. DIST \$ 19.18 C. RESID \$.00 D. NAT G \$ 13.44 15.08 10009. 18.57 855000. 21.02 18.58 16.83 17.38 0. \$ -359001. E. COAL \$.00 F. PPG \$.00 0. 0. 0. 0. M. DEMAND SAVINGS 14.88 0. 506008. N. TOTAL 3. NON ENERGY SAVINGS(+) / COST(-) 100. A. ANNUAL RECURRING (+/-)(1) DISCOUNT FACTOR (TABLE A) 14.88 (2) DISCOUNTED SAVING/COST (3A X 3A1) 1488. B. NON RECURRING SAVINGS(+) / COSTS(-) DISCNT DISCOUNTED SAVINGS(+)/COST(-)(4) SAVINGS(+) YR COST(-) OC (1) (2) ITEM 0. d. TOTAL \$ 0. C. TOTAL NON ENERGY DISCOUNTED SAVINGS(+)/COST(-)(3A2+3Bd4)\$ 1488. 4. FIRST YEAR DOLLAR SAVINGS 2N3+3A+(3Bd1/(YRS ECONOMIC LIFE))\$ 27484. 6.25 YEARS 5. SIMPLE PAYBACK PERIOD (1G/4) \$ 507496. 6. TOTAL NET DISCOUNTED SAVINGS (2N5+3C) (SIR) = (6 / 1G) =7. SAVINGS TO INVESTMENT RATIO 2.95 (IF < 1 PROJECT DOES NOT QUALIFY) 8.73 % 8. ADJUSTED INTERNAL RATE OF RETURN (AIRR):

LIFE CYCLE COST ANALYSIS SUMMARY

ENERGY CONSERVATION INVESTMENT PROGRAM (ECIP)

INSTALLATION & LOCATION: FORT BRAGG REGION NOS. 4 CENSUS: 3 PROJECT NO. & TITLE: 94013.04 LES: ECO2 - NAT GAS INFRARED HEAT FISCAL YEAR 95 DISCRETE PORTION NAME: ECO ANALYSIS DATE: 12-12-94 ECONOMIC LIFE 20 YEARS PREPARED BY: G.B. LOFLIN 1. INVESTMENT 187285. A. CONSTRUCTION COST \$ 9364. B. SIOH 9364. C. DESIGN COST D. TOTAL COST (1A+1B+1C) \$ 206013. E. SALVAGE VALUE OF EXISTING EQUIPMENT \$ 0. F. PUBLIC UTILITY COMPANY REBATE 0. G. TOTAL INVESTMENT (1D - 1E - 1F) 206013. 2. ENERGY SAVINGS (+) / COST (-) DATE OF NISTIR 85-3273-X USED FOR DISCOUNT FACTORS OCT 1994 UNIT COST SAVINGS ANNUAL \$ DISCOUNT DISCOUNTED \$/ MWH(1) MWH/YR(2) SAVINGS(3) FACTOR(4) SAVINGS(5) FUEL A. ELECT \$ 34.95 19.

B. DIST \$ 19.18 2401.

C. RESID \$.00 0.

D. NAT G \$ 13.44 -1438. 664. 15.08 10009. \$ 46042. 855000. 18.57 \$ 0. \$ -19322. \$ 0. \$ 0. \$ 0. \$ 0. \$ -359001. 21.02 18.58 16.83 0. 0. E. COAL \$.00 17.38 .00 F. PPG \$ С. 0. M. DEMAND SAVINGS 14.88 0. 982. 27384. 506008. N. TOTAL 3. NON ENERGY SAVINGS (+) / COST (-) \$ 100. A. ANNUAL RECURRING (+/-) (1) DISCOUNT FACTOR (TABLE A) 14.88 (2) DISCOUNTED SAVING/COST (3A X 3A1) 1488. B. NON RECURRING SAVINGS (+) / COSTS (-) SAVINGS(+) YR COST(-) OC DISCNT DISCOUNTED FACTR SAVINGS(+)/ COST(-) ITEM (2) (3) COST(-)(4)(1) d. TOTAL \$ 0. 0. C. TOTAL NON ENERGY DISCOUNTED SAVINGS(+)/COST(-)(3A2+3Bd4)\$ 1488. 4. FIRST YEAR DOLLAR SAVINGS 2N3+3A+(3Bd1/(YRS ECONOMIC LIFE))\$ 27484. 7.50 YEARS 5. SIMPLE PAYBACK PERIOD (1G/4) \$ 507496. 6. TOTAL NET DISCOUNTED SAVINGS (2N5+3C) (SIR) = (6 / 1G) =2.46 7. SAVINGS TO INVESTMENT RATIO (IF < 1 PROJECT DOES NOT QUALIFY) 7.75 % 8. ADJUSTED INTERNAL RATE OF RETURN (AIRR):

Estimate: BLDG 3807 Date: 23-Nov-94 INSTALL INFARED HEATING SYSTEM COST ESTIMATE Description: LIMITED EEAP(HGR) Bid Date: Project: 94013.04 FORT BRAGG, N.C. Job #: Location: City indx:Raleigh, NC Sq. footage: Description Matl Labor Equipment Sub Manhours PAVEMENT REMOVAL, BITUMINOUS, 4" TO 6" THICK 0205541750 40.00 S.Y. 2.50 0.00 4.23 1.73 0.00 Unit values 0.10 \$100 \$0 \$169 \$69 \$0 3.80 Totals SITE REMOVAL, STEEL PIPE, WELDED CONNECTION, 0205543200 1.06 3000.00 L.F. UP TO 4"DIAMETER 0.00 2.61 0.15 0.00 Unit values \$0 \$7,838 \$3,191 \$11,029 \$0 450.00 Totals HVAC DEMO, MECH EQPT HEAVY ITEM 0207183600 3.00 Ton 0.00 0.00 314.87 0.00 314.87 14.55 Unit values \$0 \$0 \$945 \$0 \$945 43.64 Totals REMOVE PIPE INSULATION UP TO 4" DIAMETER PIPE 0208400600 3000.00 L.F. 0.20 0.00 1.83 0.07 0.00 1.63 Unit values \$4,902 \$587 \$0 \$5,489 Totals 213.00 \$0 REMOVE INSULATION FROM PIPE FITTING, UP TO 4" 0208401000 400.00 Ea. DIAMETER PIPE 0.56 0.00 5.16 0.00 4.60 0.20 Unit values \$1,838 \$225 \$0 \$2.063 \$0 80.00 Totals TAMPING TRENCH B'FILL, VIBRATING PLATE, ADD 0222541900 50.00 C.Y. 0.00 1.99 0.55 0.09 0.00 1.44 Unit values \$100 \$72 \$0 4.45 \$0 \$28 Totals TRENCH EXCVTNG 40HP CHNTRNCHR&BKFL 12"W24"D 0222582800 600.00 L.F. 0.00 0.39 0.20 0.00 0.20 0.01 Unit values \$117 \$234 \$117 6.00 \$0 Totals ASPHALTIC CONCRETE PAVEMENT, PAVING, WEARING 0251040380 40.00 S.Y. COURSE, 2" THICK 0.00 3.48 0.25 2.96 0.27 0.02 Unit values \$0 \$139 \$10 \$118 \$11 0.60 Totals

| 0260120200 | TO B ATTE | OR PIPE IN | | | 10 00 | C.Y. |
|-----------------------|---------------|------------------------------|---------------|--------------|---------------|-----------------|
| Unit values Totals | 0.16 | 3.79 \$38 | 2.79 \$28 | 1.13 \$11 | 0.00 | |
| 0260120500 | BEDDING, E | PLACING IN | TRENCH | | 10.00 | C V |
| Unit values Totals | 0.09 0.89 | 0.00 \$0 | 1.44 \$14 | 0.55 \$6 | 0.00 | 1.99 |
| 0266907800 | CUT IN VAI | LVES, W/DUC | K TIP GASK | ET, 4" DIA | METER 1.00 | Fa |
| Unit values Totals | 1.56 1.56 | 404.00 \$404 | 29.36 \$29 | 4.89 \$5 | 0.00 | 438.25 \$438 |
| 0268520150 | GAS SERVIC | CE & DISTRI | B PIPING, P | OLYETHYLEN | E,60- | T E |
| Unit values Totals | 0.06 36.60 | DIAM SDR 1 0.63 \$382 | 1.10 \$670 | 0.00 \$0 | 0.00 | 1.72 \$1,052 |
| 0268520600 | GAS SERVIC | CE&DISTRIB | PIPING, SCH | 40 STEEL P | LAIN | T D |
| Unit values Totals | 0.11 5.70 | OAT&WRAP 1- 3.40 \$170 | 2.63 \$131 | 0.15 \$8 | 0.00 | 6.19 \$309 |

| Line # | Description | on | | | | |
|-------------------------------------|-------------|----------------------|-------------------|---------------------------------------|---------------------|-----------------------------|
| | Manhours | Matl | Labor | Equipment | Sub | Total |
| 22222222222 | ======== | ======= | ======== | | | |
| U02 SITEWORK | 848 | \$1,112 | \$16,664 | \$4,288 | \$0 | \$22,064 |
| 1531106180 | WTR HTR C | | | H 192 GPH | 1.00 | Ea. |
| Unit values Totals | 13.33 | 2097.90 | 226.88 | | 0.00 | 2324.78 \$2,325 |
| 1551153320 | HTG BR GAS | S CI STD H | TWR GOP 2 | 000 MBH | • | |
| Unit values Totals | 84.21 | 12487.50 \$12,488 | 1376.38 | 0.00 | | Ea. 13863.88 \$13,864 |
| 1554510245 Unit values Totals | (See Attac | ched Estim | ate for d 0.00 | AS ELEC IGN etails) 81627.00 \$81,627 | | LS 81627.00 \$81,627 |
| 1562600137 Unit values Totals | TYPE 1-1/4 | | ZE 9.14 | | 1.00 0.00 \$0 | 234.91 |
| U15 MECHANICAL | 99 | \$14,812 | \$1,612 | \$81,627 | \$0 | \$98,051 |

| | ======= | ======= | ======= | ======== | ======== | ====== | = |
|---|---|------------|----------|-----------|----------|--|---|
| Line # | Descripti | on | | | | | _ |
| | Manhours | Matl | Labor | Equipment | Sub | Total | _ |
| =============== | :======= | ======== | ======= | ======== | *====== | ====== | = |
| ESTIMATE TOTAL | 947 | \$15,924 | \$18,276 | \$85,915 | \$0 | \$120,115 | |
| SALES TAX MATL MARKUP LABOR MARKUP EQUIPT MARKUP SUB MARKUP | 0.00% 0.00% 0.00% 0.00% 0.00% | \$0 \$0 | \$0 | \$0 | \$0 | | |
| TOTAL BEFORE C CONTINGENCY BOND PROFIT | CONTINGENC 20.00% 0.00% 10.00% | \$15,924 | \$18,276 | \$85,915 | \$0 | \$120,115 \$24,023 \$0 \$12,012 | |
| JOB TOTAL | | | | | | \$156,150 | |

Estimate: BLDG 3807 Date: 23-Nov-94
Description: INSTALL INFARED HEATING SYSTEM COST ESTIMATE
Project: LIMITED EEAP(HGR) Bid Date:
Location: FORT BRAGG, N.C. Job #: 94013.04

Sq. footage: ******

City indx:Raleigh, NC

| SUMMARY | | | | | | | |
|--|---|---------------------|---------------------|---------------------|------------|--|--|
| | Manhours | Matl | Labor | Equipment | Sub | Total | |
| | ======== | ======= | ======= | ======= | | | |
| U02 SITEWORK U15 MECHANICAL | 848 | \$1,112 \$14,812 | \$16,664 \$1,612 | \$4,288 \$81,627 | \$0 \$0 | \$22,064 \$98,051 | |
| TOTAL | 947 | \$15,924 | \$18,276 | \$85,915 | \$0 | \$120,115 | |
| SALES TAX MATL MARKUP LABOR MARKUP | 0.00% 0.00% 0.00% | \$0 \$0 | \$0 | | | | |
| EQUIPT MARKUP SUB MARKUP | 0.00% 0.00% | | | \$0 | \$0 | | |
| TOTAL BEFORE CONTINGENCY BOND PROFIT | CONTINGENC 20.00% 0.00% 10.00% | \$15,924 | \$18,276 | \$85,915 | \$0 | \$120,115 \$24,023 \$0 \$12,012 | |
| JOB TOTAL | | | | | | \$156,150 | |

LIFE CYCLE COST ANALYSIS SUMMARY

ENERGY CONSERVATION INVESTMENT PROGRAM (ECIP)

INSTALLATION & LOCATION: FORT BRAGG REGION NOS. 4 CENSUS: 3

PROJECT NO. & TITLE: 94013.04 LES: ECO2 - NAT GAS INFRARED HEAT FISCAL YEAR 95 DISCRETE PORTION NAME: ECO ANALYSIS DATE: 12-05-94 ECONOMIC LIFE 20 YEARS PREPARED BY: G.B. LOFLIN 1. INVESTMENT 71897. A. CONSTRUCTION COST \$ 3595. B. SIOH C. DESIGN COST \$ 3595.
D. TOTAL COST (1A+1B+1C) \$ 79087. 0. 0. E. SALVAGE VALUE OF EXISTING EQUIPMENT \$ F. PUBLIC UTILITY COMPANY REBATE \$ G. TOTAL INVESTMENT (1D - 1E - 1F) 79087. 2. ENERGY SAVINGS (+) / COST (-) DATE OF NISTIR 85-3273-X USED FOR DISCOUNT FACTORS OCT 1994 UNIT COST SAVINGS ANNUAL \$ DISCOUNT DISCOUNTED \$/ MWH(1) MWH/YR(2) SAVINGS(3) FACTOR(4) SAVINGS(5) FUEL A. ELECT \$ 34.95 | 15. \$ 507.

B. DIST \$ 19.18 | 1055. \$ 20227.

C. RESID \$.00 | 0. \$ 0.

D. NAT G \$ 13.44 | -614. \$ -8257.

E. COAL \$.00 | 0. \$ 0.

F. PPG \$.00 | 0. \$ 0.

M. DEMAND SAVINGS | \$ 0.

N. TOTAL | 455. \$ 12477. 507. 15.08 7642. 18.57 375616. 21.02 0. 21.02 18.58 16.83 -153420. 0. 17.38 0. 14.88 0. 229838. 3. NON ENERGY SAVINGS(+) / COST(-) 2881. A. ANNUAL RECURRING (+/-) (1) DISCOUNT FACTOR (TABLE A) 14.88 \$ 42872. (2) DISCOUNTED SAVING/COST (3A X 3A1) B. NON RECURRING SAVINGS(+) / COSTS(-) SAVINGS(+) YR COST(-) OC DISCNT DISCOUNTED AVINGE (COST(-) SAVINGS(+)/ COST(-)(4) FACTR ITEM (2) (3) d. TOTAL 0. C. TOTAL NON ENERGY DISCOUNTED SAVINGS(+)/COST(-)(3A2+3Bd4)\$ 4. FIRST YEAR DOLLAR SAVINGS 2N3+3A+(3Bd1/(YRS ECONOMIC LIFE))\$ 5.15 YEARS 5. SIMPLE PAYBACK PERIOD (1G/4) \$ 272711. 6. TOTAL NET DISCOUNTED SAVINGS (2N5+3C) 7. SAVINGS TO INVESTMENT RATIO (SIR) = (6 / 1G) =3.45 (IF < 1 PROJECT DOES NOT QUALIFY) 9.58 % 8. ADJUSTED INTERNAL RATE OF RETURN (AIRR):

ENERGY CONSERVATION INVESTMENT PROGRAM (ECIP)

LCCID FY95 (92)

LLATION & LOCATION: FORT BRACE BROTON INSTALLATION & LOCATION: FORT BRAGG REGION NOS. 4 CENSUS: 3 PROJECT NO. & TITLE: 94013.04 LES: ECO2 - NAT GAS INFRARED HEAT FISCAL YEAR 95 DISCRETE PORTION NAME: ECO 12-05-94 ECONOMIC LIFE 20 YEARS PREPARED BY: G.B. LOFLIN ANALYSIS DATE: 1. INVESTMENT A. CONSTRUCTION COST \$ 103032. 5152. B. SIOH C. DESIGN COST \$ 5152. D. TOTAL COST (1A+1B+1C) \$ 113336. E. SALVAGE VALUE OF EXISTING EQUIPMENT \$ F. PUBLIC UTILITY COMPANY REBATE 0. G. TOTAL INVESTMENT (1D - 1E - 1F) 113336. 2. ENERGY SAVINGS (+) / COST (-) DATE OF NISTIR 85-3273-X USED FOR DISCOUNT FACTORS OCT 1994 UNIT COST SAVINGS ANNUAL \$ DISCOUNT DISCOUNTED FUEL \$/ MWILLER,

A. ELECT \$ 34.95 | 15. \$ 507.

B. DIST \$ 19.18 | 1055. \$ 20227.

C. RESID \$.00 | 0. \$ 0.

D. NAT G \$ 13.44 | -614. \$ -8257.

E. COAL \$.00 | 0. \$ 0.

F. PPG \$.00 | 0. \$ 0.

5 12477. FACTOR(4) \$/ MWH(1) MWH/YR(2) SAVINGS(3) SAVINGS (5) FUEL 7642. 15.08 18.57 375616. 21.02 0. \$ -153420. \$ 0. \$ 0. \$ 18.58 16.83 17.38 \$ 0. 455. \$ 12477. 14.88 0. N. TOTAL 229838. 3. NON ENERGY SAVINGS (+) / COST (-) A. ANNUAL RECURRING (+/-) \$ 2881. 14.88 (1) DISCOUNT FACTOR (TABLE A) (2) DISCOUNTED SAVING/COST (3A X 3A1) 42872. B. NON RECURRING SAVINGS (+) / COSTS (-) SAVINGS(+) YR DISCNT DISCOUNTED COST(-) OC FACTR SAVINGS(+)/ ITEM (2) COST(-)(4)(1) (3) d. TOTAL 0. C. TOTAL NON ENERGY DISCOUNTED SAVINGS(+)/COST(-)(3A2+3Bd4)\$ 4. FIRST YEAR DOLLAR SAVINGS 2N3+3A+(3Bd1/(YRS ECONOMIC LIFE))\$ 7.38 YEARS 5. SIMPLE PAYBACK PERIOD (1G/4) \$ 272711. 6. TOTAL NET DISCOUNTED SAVINGS (2N5+3C) 7. SAVINGS TO INVESTMENT RATIO (SIR) = (6 / 1G) =(IF < 1 PROJECT DOES NOT QUALIFY) 7.62 % 8. ADJUSTED INTERNAL RATE OF RETURN (AIRR):

LCCID FY95 (92)

BLDG 3954 Estimate: Date: 23-Nov-94 INSTALL INFARED HEATING SYSTEM COST ESTIMATE Description: LIMITED EEAP(HGR) Bid Date: Project: Location: FORT BRAGG, N.C. Job #: 94013.04 ***** City indx:Raleigh, NC Sq. footage: Description Labor Manhours Matl Equipment _______ PAVEMENT REMOVAL, BITUMINOUS, 4" TO 6" THICK 0205541750 30.00 S.Y. Unit values 0.10 0.00 1.73 2.50 0.00 4.23 Totals 2.85 \$0 \$52 \$75 \$0 \$127 0205543200 SITE REMOVAL, STEEL PIPE, WELDED CONNECTION, UP TO 4"DIAMETER 1600.00 L.F. 0.15 Unit values 0.00 2.61 1.06 0.00 3.68 Totals 240.00 \$0 \$4,180 \$1,702 \$0 \$5,882 0207180380 HVAC DEMO, BOILER GAS/OIL STL >150MBH (qty) Ea. Unit values 12.00 0.00 268.07 0.00 0.00 268.07 Totals 0.00 \$0 \$0 \$0 \$0 \$0 HVAC DEMO, MECH EQPT HEAVY ITEM 0207183600 1.50 Ton 314.87 Unit values 14.55 0.00 0.00 0.00 314.87 Totals 21.82 \$0 \$472 \$0 \$0 \$472 REMOVE PIPE INSULATION UP TO 4" DIAMETER PIPE 0208400600 1400.00 L.F. Unit values 0.07 0.00 1.63 0.20 1.83 0.00 Totals 99.40 \$0 \$2,287 \$274 \$0 \$2,561 0208401000 REMOVE INSULATION FROM PIPE FITTING, UP TO 4" DIAMETER PIPE 160.00 Ea. 0.20 Unit values 0.00 4.60 0.56 5.16 0.00 Totals 32.00 \$0 \$735 \$90 \$825 \$0 0222541900 TAMPING TRENCH B'FILL, VIBRATING PLATE, ADD 15.00 C.Y. Unit values 0.09 0.00 1.44 0.55 1.99 0.00 Totals 1.34 \$0 \$22 \$8 \$0 \$30 0222582800 TRENCH EXCVTNG 40HP CHNTRNCHR&BKFL 12"W24"D 200.00 L.F. Unit values 0.00 0.20 0.20 0.01 0.00 0.39 Totals 2.00 \$0 \$39 \$39 \$0 \$78 0251040380 ASPHALTIC CONCRETE PAVEMENT, PAVING, WEARING

| Unit values Totals | COURSE, 2" 0.02 0.45 | 2.96 | 0.27 \$8 | 0.25 \$7 | 30.00 S 0.00 \$0 | 3.48 |
|-----------------------|------------------------------|-----------------|---------------|--------------|-------------------------|---------------|
| 0260120200 | BEDDING, FO | OR PIPE IN | TRENCH S | AND, DEAD OF | ₹ 8.00 (| r v |
| Unit values Totals | | 3.79 \$30 | 2.79 \$22 | 1.13 \$9 | 0.00 | 7.71 |
| 0260120500 | BEDDING, P | LACING IN | TRENCH | | | |
| Unit values Totals | | | | 0.55 | | 1.99 |
| 0266907800 | CUT IN VAL | VES, W/DUC | CK TIP GAS | KET, 4" DIAN | | |
| Unit values Totals | 1.56 1.56 | 404.00 \$404 | 29.36 \$29 | 4.89 \$5 | 1.00 E 0.00 \$0 | 438.25 |
| 0268520150 | GAS SERVICE | E & DISTRI | B PIPING, | POLYETHYLENE | E,60- | |
| Unit values Totals | PSI 1-1/4"I 0.06 12.60 | 0.63 \$132 | 1.10 \$231 | 0.00 | 210.00 I 0.00 \$0 | 1.72 \$363 |
| 0268520600 | GAS SERVICE | E&DISTRIB | PIPING, SC | H40 STEEL PI | AIN | - |
| Unit values Totals | 0.11 5.70 | 3.40 \$170 | 2.63 \$131 | 0.15 \$8 | 50.00 I 0.00 \$0 | 6.19 \$309 |

| Line # | Description | on | | | | |
|-----------------------|----------------------------|-----------------|---------|----------------------|---------------------|----------|
| | Manhours | Matl | Labor | Equipment | Sub | Total |
| =========== | | | | | | |
| U02 SITEWORK | 422 | \$825 | \$8,220 | \$2,221 | \$0 | \$11,266 |
| 1554510245 | HTG CO-RAY | | | GAS ELEC IGN | 1.00 | TC |
| Unit values Totals | | | 0.00 | 43804.00 \$43,804 | 0.00 | 43804.00 |
| 1562600137 | GAS APPLIA | | | UBLE DIAPHRAG | | _ |
| Unit values Totals | TYPE 1-1/4 0.53 0.53 | 225.77 \$226 | | 0.00 \$0 | 1.00 0.00 \$0 | 234.91 |
| U15 MECHANICAL | 1 | \$226 | \$9 | \$43,804 | \$0 | \$44,039 |

JOB TOTAL

\$71,897

| Line # | Descriptio | n | | | | |
|--|--|------------|---------|-----------|-----|--|
| | Manhours | Matl | Labor | Equipment | Sub | Total |
| | ======== | | | | | |
| ESTIMATE TOTAL | 423 | \$1,051 | \$8,229 | \$46,025 | \$0 | \$55,305 |
| SALES TAX MATL MARKUP LABOR MARKUP | 0.00% 0.00% 0.00% | \$0 \$0 | \$0 | | | |
| EQUIPT MARKUP SUB MARKUP | 0.00% 0.00% | | | \$0 | \$0 | |
| TOTAL BEFORE CONTINGENCY BOND PROFIT | ONTINGENC 20.00% 0.00% 10.00% | \$1,051 | \$8,229 | \$46,025 | \$0 | \$55,305 \$11,061 \$0 \$5,531 |

Estimate: BLDG 3954 Date: 23-Nov-94

Description: INSTALL INFARED HEATING SYSTEM COST ESTIMATE

Project: LIMITED EEAP(HGR) Bid Date:

Location: FORT BRAGG, N.C. Job #: 94013.04 Sg. footage: ****** City indx:Raleigh, NC

Sq. footage: SUMMARY _____ Manhours Matl Labor Equipment Sub Total ______ \$825 \$8,220 U02 SITEWORK 422 \$2,221 \$0 \$11,266 U15 MECHANICAL \$226 \$9 \$43,804 1 \$0 \$44,039 TOTAL 423 \$1,051 \$8,229 \$46,025 \$0 \$55,305 SALES TAX 0.00% \$0 MATL MARKUP 0.00% \$0 LABOR MARKUP 0.00% \$0 EQUIPT MARKUP \$0 0.00% SUB MARKUP 0.00% \$0 TOTAL BEFORE CONTINGENC \$1,051 \$8,229 \$46,025 \$0 \$55,305 CONTINGENCY 20.00% \$11,061 BOND 0.00% \$0 PROFIT 10.00% \$5,531 JOB TOTAL \$71,897

ENERGY CONSERVATION INVESTMENT PROGRAM (ECIP)
ALLATION & LOCATION. FORT BRACE PROGRAM (ECIP)

LCCID FY95 (92) INSTALLATION & LOCATION: FORT BRAGG REGION NOS. 4 CENSUS: 3 PROJECT NO. & TITLE: 94013.04 LES: ECO2 - NAT GAS INFRARED HEAT FISCAL YEAR 95 DISCRETE PORTION NAME: ECO ANALYSIS DATE: 12-13-94 ECONOMIC LIFE 20 YEARS PREPARED BY: G.B. LOFLIN 1. INVESTMENT A. CONSTRUCTION COST \$ 81151.
B. SIOH \$ 4058.
C. DESIGN COST \$ 4058.
D. TOTAL COST (1A+1B+1C) \$ 89267. E. SALVAGE VALUE OF EXISTING EQUIPMENT \$
F. PUBLIC UTILITY COMPANY REBATE \$
G. TOTAL INVESTMENT (1) 0. 0. E. SALVAGE VALUE OF EXISTING EQUIPMENT \$ G. TOTAL INVESTMENT (1D - 1E - 1F) 89267. 2. ENERGY SAVINGS (+) / COST (-) DATE OF NISTIR 85-3273-X USED FOR DISCOUNT FACTORS OCT 1994 UNIT COST SAVINGS ANNUAL \$ DISCOUNT DISCOUNTED \$/ MWH(1) MWH/YR(2) SAVINGS(3) FACTOR(4) SAVINGS(5) FUEL 4264. 515845. 0. 0. 0. ٥. 275827. 3. NON ENERGY SAVINGS(+) / COST(-) \$ 4750. A. ANNUAL RECURRING (+/-)(1) DISCOUNT FACTOR (TABLE A) 14.88 (2) DISCOUNTED SAVING/COST (3A X 3A1) \$ 70684. B. NON RECURRING SAVINGS(+) / COSTS(-) SAVINGS(+) YR DISCNT DISCOUNTED COST(-) OC FACTR SAVINGS(+)/ COST(-) OC (2) SAVINGS(+)/ COST(-)(4) (3) d. TOTAL 0. C. TOTAL NON ENERGY DISCOUNTED SAVINGS(+)/COST(-)(3A2+3Bd4)\$ 70684. 4. FIRST YEAR DOLLAR SAVINGS 2N3+3A+(3Bd1/(YRS ECONOMIC LIFE))\$ 5. SIMPLE PAYBACK PERIOD (1G/4) 4.54 YEARS 6. TOTAL NET DISCOUNTED SAVINGS (2N5+3C) \$ 346511. 7. SAVINGS TO INVESTMENT RATIO (SIR) = (6 / 1G) =3.88 (IF < 1 PROJECT DOES NOT QUALIFY) 8. ADJUSTED INTERNAL RATE OF RETURN (AIRR): 10.23 %

LCCID FY95 (92)

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LIFE CYCLE COST ANALYSIS SUMMARY

ENERGY CONSERVATION INVESTMENT PROGRAM (ECIP)

INSTALLATION & LOCATION: FORT BRAGG REGION NOS. 4 CENSUS: 3
PROJECT NO. & TITLE: 94013.04 LES: ECO2 - NAT GAS INFRARED HEAT
FISCAL YEAR 95 DISCRETE PORTION NAME: ECO
ANALYSIS DATE: 12-13-94 ECONOMIC LIFE 20 YEARS PREPARED BY: G.B. LOFLIN
1. INVESTMENT
A. CONSTRUCTION COST $
                               112286.
                              5614.
B. SIOH $ 5614.
C. DESIGN COST $ 5614.
D. TOTAL COST (1A+1B+1C) $ 123514.
                                5614.
E. SALVAGE VALUE OF EXISTING EQUIPMENT $ 0. F. PUBLIC UTILITY COMPANY REBATE $ 0.
G. TOTAL INVESTMENT (1D - 1E - 1F)
                                                          123514.
2. ENERGY SAVINGS (+) / COST (-)
DATE OF NISTIR 85-3273-X USED FOR DISCOUNT FACTORS OCT 1994
             UNIT COST SAVINGS ANNUAL $ DISCOUNTED
             $/ MWH(1) MWH/YR(2) SAVINGS(3) FACTOR(4) SAVINGS(5)
    FUEL
   4264.
                                                                    515845.
                                                                         0.
                                                                $ -244281.
                                                                   0.
                                                                         0.
                                                                        0.
                                                                    275827.
3. NON ENERGY SAVINGS (+) / COST (-)
                                                               $
   A. ANNUAL RECURRING (+/-)
                                                                     4750.
       (1) DISCOUNT FACTOR (TABLE A)
                                                      14.88
       (2) DISCOUNTED SAVING/COST (3A X 3A1)
                                                                $ 70684.
   B. NON RECURRING SAVINGS(+) / COSTS(-)
                            SAVINGS(+) YR
COST(-) OC
                             COST(-) OC
                                             DISCNT DISCOUNTED FACTR SAVINGS(+)/
               ITEM
                                               (3)
                                                         COST(-)(4)
   d. TOTAL
                             Ŝ
                                 0.
   C. TOTAL NON ENERGY DISCOUNTED SAVINGS(+)/COST(-)(3A2+3Bd4)$ 70684.
4. FIRST YEAR DOLLAR SAVINGS 2N3+3A+(3Bd1/(YRS ECONOMIC LIFE))$ 19664.
5. SIMPLE PAYBACK PERIOD (1G/4)
                                                                 6.28 YEARS
6. TOTAL NET DISCOUNTED SAVINGS (2N5+3C)
                                                                $ 346511.
7. SAVINGS TO INVESTMENT RATIO (IF < 1 PROJECT DOES NOT QUALIFY)
                                       (SIR) = (6 / 1G) =
                                                                 2.81
8. ADJUSTED INTERNAL RATE OF RETURN (AIRR):
                                                               8.45 %
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_______ BLDG 3962 Date: 23-Nov-94 Estimate: INSTALL INFARED HEATING SYSTEM COST ESTIMATE Description: LIMITED EEAP(HGR) Bid Date: Project: 94013.04 FORT BRAGG, N.C. Job #: Location: ***** City indx:Raleigh, NC Sq. footage: Description Labor Equipment Sub Manhours ______ 0205541750 PAVEMENT REMOVAL, BITUMINOUS, 4" TO 6" THICK 30.00 S.Y. Unit values 0.10 0.00 1.73 2.50 0.00 4.23 2.85 \$0 \$52 \$75 \$0 \$127 Totals SITE REMOVAL, STEEL PIPE, WELDED CONNECTION. 0205543200 1600.00 L.F. UP TO 4"DIAMETER 1.06 Unit values 0.15 0.00 2.61 0.00 3.68 240.00 \$0 \$4,180 \$1,702 \$0 Totals \$5,882 0207180380 HVAC DEMO, BOILER GAS/OIL STL >150MBH (qty) Ea. 12.00 0.00 268.07 0.00 268.07 0.00 Unit values \$0 \$0 Totals 0.00 \$0 \$0 \$0 HVAC DEMO, MECH EOPT HEAVY ITEM 0207183600 1.50 Ton 0.00 0.00 Unit values 14.55 314.87 0.00 314.87 Totals 21.82 \$0 \$472 \$0 \$0 \$472 REMOVE PIPE INSULATION UP TO 4" DIAMETER PIPE 0208400600 1400.00 L.F. Unit values 0.07 0.00 1.63 0.20 0.00 1.83 99.40 Totals \$0 \$2,287 \$0 \$274 \$2,561 0208401000 REMOVE INSULATION FROM PIPE FITTING, UP TO 4" DIAMETER PIPE 160.00 Ea. 0.56 Unit values 0.20 0.00 4.60 0.00 5.16 Totals 32.00 \$0 \$735 \$90 \$0 \$825 0222541900 TAMPING TRENCH B'FILL, VIBRATING PLATE, ADD 15.00 C.Y. Unit values 0.00 0.55 0.00 1.99 0.09 1.44 \$8 \$0 \$30 \$0 \$22 Totals 1.34 TRENCH EXCVTNG 40HP CHNTRNCHR&BKFL 12"W24"D 0222582800 200.00 L.F. 0.00 0.39 0.00 0.20 0.20 Unit values 0.01 2.00 \$0 \$39 \$39 \$0 \$78 Totals 0251040380 ASPHALTIC CONCRETE PAVEMENT, PAVING, WEARING

| 30-Nov-94 | MeansData for Lotus | Page 2 |
|-----------|---------------------|--------|
|-----------|---------------------|--------|

| Unit values Totals | COURSE, 2" THICK 0.02 2.96 0.45 \$89 | 0.27 \$8 | 0.25 \$7 | | .48 L04 |
|-------------------------------------|--|---------------------|-------------|--------------------------------|------------|
| 0260120200 Unit values Totals | BEDDING, FOR PIPE BANK 0.16 3.79 1.28 \$30 | 2.79 | 1.13 | 8.00 C.Y. 0.00 7. | 71 |
| | 0.09 0.00 0.71 \$0 | 1.44 | 0.55 \$4 | 8.00 C.Y. 0.00 1. \$0 \$ | |
| | CUT IN VALVES, W/I 1.56 404.00 1.56 \$404 | 29.36 | 4.89 | 1.00 Ea. 0.00 438. | 25 38 |
| 0268520150 Unit values Totals | GAS SERVICE & DIST PSI 1-1/4"DIAM SDR 0.06 0.63 12.60 \$132 | 1.10 | 0.00 | 210.00 L.F. 0.00 1. | 72 63 |
| 0268520600 Unit values Totals | GAS SERVICE&DISTRI END, TAR COAT&WRAP 0.11 3.40 5.70 \$170 | 1-1/4" DIAM 2.63 | 0.15 | 50.00 L.F. 0.00 6. | 19 09 |

| Line # | Descriptio | n | | | | |
|---|----------------------------|-----------------|---------|-----------------------|---------------------|----------------------|
| | Manhours | Matl | Labor | Equipment | Sub | Total |
| ======================================= | | | | | | |
| U02 SITEWORK | 422 | \$825 | \$8,220 | \$2,221 | \$0 | \$11,266 |
| 1554510245 | HTG CO-RAY | | | GAS ELEC IGN details) | 1.00 | LS |
| Unit values Totals | | | | 50923.00 | 0.00 \$0 | 50923.00 \$50,923 |
| 1562600137 | | | | UBLE DIAPHRAC | | _ |
| Unit values Totals | TYPE 1-1/4 0.53 0.53 | 225.77 \$226 | | 0.00 \$0 | 1.00 0.00 \$0 | |
| U15 MECHANICAL | 1 | \$226 | \$9 | \$50,923 | \$0 | \$51,158 |

| Descriptio | on | | | | |
|---|--|---|---|---|--|
| Manhours | Matl | Labor | Equipment | Sub | Total |
| ======================================= | | | | | |
| 423 | \$1,051 | \$8,229 | \$53,144 | \$0 | \$62,424 |
| 0.00% 0.00% 0.00% | \$0 \$0 | \$0 | ¢o | | |
| 0.00% | | | \$0 | \$0 | |
| ONTINGENC 20.00% 0.00% | \$1,051 | \$8,229 | \$53,144 | \$0 | \$62,424 \$12,485 \$0 |
| 10.00% | | | | | \$6,242 \$81,151 |
| | Manhours 423 0.00% 0.00% 0.00% 0.00% 0.00% | 423 \$1,051 0.00% \$0 0.00% \$0 0.00% 0.00% 0.00% 0.00% DNTINGENC \$1,051 20.00% 0.00% | Manhours Matl Labor 423 \$1,051 \$8,229 0.00% \$0 0.00% \$0 0.00% \$0 0.00% \$0 0.00% 0.00% 0.00% 0.00% 0.00% | Manhours Matl Labor Equipment 423 \$1,051 \$8,229 \$53,144 0.00% \$0 0.00% \$0 0.00% \$0 0.00% \$0 0.00% \$0 0.00% \$0 0.00% \$0 0.00% \$0 0.00% \$0 0.00% \$0 0.00% \$0 0.00% \$1,051 \$8,229 \$53,144 | Manhours Matl Labor Equipment Sub 423 \$1,051 \$8,229 \$53,144 \$0 0.00% \$0 0.00% \$0 0.00% \$0 0.00% \$0 0.00% \$0 0.00% \$0 0.00% \$0 0.00% \$0 0.00% \$0 0.00% \$0 0.00% \$0 0.00% \$0 0.00% \$0 0.00% \$0 0.00% \$0 |

\$81,151

Estimate: BLDG 3962 Date: 23-Nov-94
Description: INSTALL INFARED HEATING SYSTEM COST ESTIMATE
Project: LIMITED EEAP(HGR) Bid Date:
Location: FORT BRAGG, N.C. Job #: 94013.04
Sq. footage: ******* City indx:Raleigh, NC

JOB TOTAL

| SUMMARY | | | | | | |
|---|--|----------------|----------------|---------------------|------------|--|
| | Manhours | Matl | Labor | Equipment | Sub | Total |
| ======================================= | | | .=====: | =======: | ======= | ======= |
| U02 SITEWORK U15 MECHANICAL | 422 1 | \$825 \$226 | \$8,220 \$9 | \$2,221 \$50,923 | \$0 \$0 | \$11,266 \$51,158 |
| TOTAL | 423 | \$1,051 | \$8,229 | \$53,144 | \$0 | \$62,424 |
| SALES TAX MATL MARKUP LABOR MARKUP EQUIPT MARKUP | 0.00% 0.00% 0.00% 0.00% | \$0 \$0 | \$0 | \$0 | | |
| SUB MARKUP | 0.00% | | | · | \$0 | |
| TOTAL BEFORE CONTINGENCY BOND PROFIT | ONTINGENC 20.00% 0.00% 10.00% | \$1,051 | \$8,229 | \$53,144 | \$0 | \$62,424 \$12,485 \$0 \$6,242 |

LIFE CYCLE COST ANALYSIS SUMMARY STUDY: 4137E02A ENERGY CONSERVATION INVESTMENT PROGRAM (ECIP) LCCID FY95 (92 LCCID FY95 (92) INSTALLATION & LOCATION: FORT BRAGG REGION NOS. 4 CENSUS: 3 PROJECT NO. & TITLE: 94013.04 LES: ECO2 - NAT GAS INFRARED HEAT FISCAL YEAR 95 DISCRETE PORTION NAME: ECO ANALYSIS DATE: 12-05-94 ECONOMIC LIFE 20 YEARS PREPARED BY: G.B. LOFLIN 1. INVESTMENT A. CONSTRUCTION COST \$ B. SIOH \$ 56824. 2841. C. DESIGN COST \$
D. TOTAL COST (1A+1B+1C) \$ 2841. 62506. E. SALVAGE VALUE OF EXISTING EQUIPMENT \$ 0. F. PUBLIC UTILITY COMPANY REBATE G. TOTAL INVESTMENT (1D - 1E - 1F) 2. ENERGY SAVINGS (+) / COST (-) DATE OF NISTIR 85-3273-X USED FOR DISCOUNT FACTORS OCT 1994 UNIT COST SAVINGS ANNUAL \$ DISCOUNT DISCOUNTED SAVINGS(3) MWH/YR(2) FACTOR(4) SAVINGS(5) S/ MWH(1) 920. 15.08 13872. 18.57 373169. 21.02 0. 18.58 16.83 -143057. 0. 17.38 0. 0. 14.88 0. 243984. 3. NON ENERGY SAVINGS(+) / COST(-) A. ANNUAL RECURRING (+/-) 1339. 14.88 (1) DISCOUNT FACTOR (TABLE A) \$ 19923. (2) DISCOUNTED SAVING/COST (3A X 3A1) B. NON RECURRING SAVINGS(+) / COSTS(-) SAVINGS(+) YR DISCNT COST(-) OC FACTR DISCOUNTED COST(-) ITEM SAVINGS(+)/ (1) (2) (3) COST(-)(4)d. TOTAL C. TOTAL NON ENERGY DISCOUNTED SAVINGS(+)/COST(-)(3A2+3Bd4)\$ 4. FIRST YEAR DOLLAR SAVINGS 2N3+3A+(3Bd1/(YRS ECONOMIC LIFE))\$ 5. SIMPLE PAYBACK PERIOD (1G/4) 4.27 YEARS 6. TOTAL NET DISCOUNTED SAVINGS (2N5+3C) \$ 263907. 7. SAVINGS TO INVESTMENT RATIO (SIR) = (6 / 1G) =4.22 (IF < 1 PROJECT DOES NOT QUALIFY) 8. ADJUSTED INTERNAL RATE OF RETURN (AIRR): 10.69 %

LIFE CYCLE COST ANALYSIS SUMMARY
ENERGY CONSERVATION INVESTMENT PROGRAM (ECIP)

STUDY: 4137E02B
LCCID FY95 (92) INSTALLATION & LOCATION: FORT BRAGG REGION NOS. 4 CENSUS: 3 PROJECT NO. & TITLE: 94013.04 LES: ECO2 - NAT GAS INFRARED HEAT FISCAL YEAR 95 DISCRETE PORTION NAME: ECO ANALYSIS DATE: 12-05-94 ECONOMIC LIFE 20 YEARS PREPARED BY: G.B. LOFLIN 1. INVESTMENT A. CONSTRUCTION COST \$ 87959. B. SIOH \$ 4398. C. DESIGN COST \$ 4398. D. TOTAL COST (1A+1B+1C) \$ 96755. F. PUBLIC UTILITY COMPANY REBATE \$
G. TOTAL INVESTMENT (1D - 1F - 1F) 0. 96755. 2. ENERGY SAVINGS (+) / COST (-) DATE OF NISTIR 85-3273-X USED FOR DISCOUNT FACTORS OCT 1994 UNIT COST SAVINGS ANNUAL \$ DISCOUNT DISCOUNTED FUEL \$/ MWH(1) MWH/YR(2) SAVINGS(3) FACTOR(4) SAVINGS(5) 13872. 373169. 0. -143057.0. 0. 0. 243984. 3. NON ENERGY SAVINGS(+) / COST(-) \$ 1339. A. ANNUAL RECURRING (+/-)14.88 (1) DISCOUNT FACTOR (TABLE A) (2) DISCOUNTED SAVING/COST (3A X 3A1) \$ 19923. B. NON RECURRING SAVINGS(+) / COSTS(-) SAVINGS(+) YR DISCNT COST(-) OC FACTR DISCOUNTED VINGS (-) ITEM SAVINGS(+)/ (2) (3) COST(-)(4) d. TOTAL 0. C. TOTAL NON ENERGY DISCOUNTED SAVINGS (+) / COST (-) (3A2+3Bd4)\$ 4. FIRST YEAR DOLLAR SAVINGS 2N3+3A+(3Bd1/(YRS ECONOMIC LIFE))\$ 5. SIMPLE PAYBACK PERIOD (1G/4) 6.60 YEARS 6. TOTAL NET DISCOUNTED SAVINGS (2N5+3C) \$ 263907. 7. SAVINGS TO INVESTMENT RATIO (SIR) = (6 / 1G) =(IF < 1 PROJECT DOES NOT OUALIFY) 8. ADJUSTED INTERNAL RATE OF RETURN (AIRR): 8.30 %

______ BLDG 4137 Date: 23-Nov-94 Estimate: INSTALL INFARED HEATING SYSTEM COST ESTIMATE Description: LIMITED EEAP(HGR) Bid Date: Project: FORT BRAGG, N.C. Job #: 94013.04 Location: ***** City indx:Raleigh, NC Sq. footage: Description Manhours Matl Labor Equipment _______ PAVEMENT REMOVAL, BITUMINOUS, 4" TO 6" THICK 0205541750 20.00 S.Y. Unit values 0.10 0.00 1.73 2.50 0.00 4.23 Totals 1.90 \$0 \$35 \$50 \$0 \$85 0205543200 SITE REMOVAL, STEEL PIPE, WELDED CONNECTION, UP TO 4"DIAMETER 1000.00 L.F. 0.15 2.61 1.06 Unit values 0.00 0.00 3.68 Totals 150.00 \$0 \$2,613 \$1,064 \$0 \$3,677 0207180380 HVAC DEMO, BOILER GAS/OIL STL >150MBH (qty) Ea. 268.07 Unit values 12.00 0.00 0.00 0.00 268.07 Totals 0.00 \$0 \$0 \$0 \$0 \$0 HVAC DEMO, MECH EQPT HEAVY ITEM 0207183600 1.00 Ton Unit values 14.55 0.00 314.87 0.00 0.00 314.87 Totals 14.55 \$0 \$315 \$0 \$0 \$315 0208400600 REMOVE PIPE INSULATION UP TO 4" DIAMETER PIPE 1000.00 L.F. Unit values 0.07 0.00 0.00 1.63 0.20 1.83 Totals 71.00 \$0 \$1,634 \$196 \$0 \$1,830 REMOVE INSULATION FROM PIPE FITTING, UP TO 4" 0208401000 DIAMETER PIPE 125.00 Ea. Unit values 0.20 0.00 4.60 0.56 0.00 5.16 Totals 25.00 \$0 \$574 \$644 \$70 \$0 0222541900 TAMPING TRENCH B'FILL, VIBRATING PLATE, ADD 15.00 C.Y. Unit values 0.09 0.00 1.44 0.55 0.00 1.99 Totals 1.34 \$0 \$22 \$8 \$0 \$30 TRENCH EXCVTNG 40HP CHNTRNCHR&BKFL 12"W24"D 0222582800 150.00 L.F. Unit values 0.20 0.00 0.39 0.00 0.20 0.01 Totals \$29 \$29 1.50 \$0 \$0 \$58 0251040380 ASPHALTIC CONCRETE PAVEMENT, PAVING, WEARING

| MeansData for Lotus | Page 2 |
|---------------------|---------------------|
| | MeansData for Lotus |

| Unit values Totals | COURSE, 2" 0.02 0.30 | 2.96 | 0.27 \$5 | 0.25 | 20.00 S 0.00 \$0 | 3 48 |
|-----------------------|----------------------------|-----------------|---------------|-------------|------------------------|---------------|
| | BEDDING, F BANK | | | • | 2 52 0 | .Y. 7.71 |
| Unit values Totals | 0.40 | \$9 | \$7 | \$3 | \$0 | |
| 0260120500 | BEDDING, P | LACING IN | TRENCH | | 2.50 C | v |
| Unit values Totals | 0.09 0.22 | 0.00 \$0 | 1.44 \$4 | 0.55 | 0.00 \$0 | 1.99 |
| 0266907800 | CUT IN VAL | VES, W/DUC | CK TIP GASK | ET, 4" DIA | | _ |
| Unit values Totals | 1.56 1.56 | 404.00 \$404 | 29.36 \$29 | 4.89 \$5 | 1.00 E 0.00 \$0 | 438.25 |
| 0268520150 | GAS SERVICE | E & DISTRI | B PIPING, P | OLYETHYLEN | E,60- | 5 |
| Unit values Totals | PSI 1-1/4" 0.06 9.60 | 0.63 \$100 | 1.10 \$176 | 0.00 \$0 | 0.00 | 1.72 \$276 |
| 0268520600 | GAS SERVICE | E&DISTRIB | PIPING, SCH | 40 STEEL PI | LAIN 50.00 L | T |
| Unit values Totals | 0.11 5.70 | 3.40 | 2.63 | 0.15 \$8 | 0.00 | 6.19 |

| Line # Description | | | | | | |
|-------------------------------------|--------------------------|-----------|---------------|--|------------|----------------------------|
| | Manhours | Matl | Labor | Equipment | Sub | Total |
| ========= | | ====== | ====== | | =====: | ======== |
| U02 SITEWORK | 284 | \$742 | \$5,574 | \$1,439 | \$0 | \$7,755 |
| 1554510245 Unit values Totals | (See Attac | hed Estim | nate for 0.00 | GAS ELEC IGN details) 35721.00 \$35,721 | | LS 35721.00 \$35,721 |
| 1562600137 | GAS APPLIA TYPE 1-1/4 | | | UBLE DIAPHRAG | GM 1.00 | T a |
| Unit values Totals | 0.53 | 225.77 | | 0.00 \$0 | | 234.91 \$235 |
| U15 MECHANICAL | 1 | \$226 | \$9 | \$35.721 | \$0 | \$35,956 |

| Line # | Description | on | | | | |
|--|--|---|------------|-----------|-----|---------------------------------------|
| | Manhours | Matl | Labor | Equipment | Sub | Total |
| ======================================= | ======== | ======================================= | | ======== | | |
| ESTIMATE TOTAL | 285 | \$968 | \$5,583 | \$37,160 | \$0 | \$43,711 |
| SALES TAX MATL MARKUP LABOR MARKUP | 0.00% 0.00% 0.00% | \$0 \$0 | \$0 | | | |
| EQUIPT MARKUP SUB MARKUP | 0.00% | | 4 - | \$0 | \$0 | |
| TOTAL BEFORE CONTINGENCY BOND PROFIT | ONTINGENC 20.00% 0.00% 10.00% | \$968 | \$5,583 | \$37,160 | \$0 | \$43,711 \$8,742 \$0 \$4,371 |
| JOB TOTAL | | | | | | \$56,824 |

Estimate: BLDG 4137

Date: 23-Nov-94

Description: INSTALL INFARED HEATING SYSTEM COST ESTIMATE
Project: LIMITED EEAP(HGR) Bid Date:
Location: FORT BRAGG, N.C. Job #: 94013.04
Sq. footage: ******* City indx:Raleigh, NC

| | SUMMARY | | | | | |
|---|---|----------------|----------------|---------------------|------------|---------------------------------------|
| | Manhours | Matl | Labor | Equipment | Sub | Total |
| ======================================= | :======== | ======== | ====== | ========= | | |
| U02 SITEWORK U15 MECHANICAL | 284 1 | \$742 \$226 | \$5,574 \$9 | \$1,439 \$35,721 | \$0 \$0 | \$7,755 \$35,956 |
| TOTAL | 285 | \$968 | \$5,583 | \$37,160 | \$0 | \$43,711 |
| SALES TAX MATL MARKUP LABOR MARKUP EQUIPT MARKUP | 0.00% 0.00% 0.00% 0.00% | \$0 \$0 | \$0 | \$0 | ** | |
| SUB MARKUP | 0.00% | | | | \$0 | |
| TOTAL BEFORE C CONTINGENCY BOND PROFIT | CONTINGENC 20.00% 0.00% 10.00% | \$968 | \$5,583 | \$37,160 | \$0 | \$43,711 \$8,742 \$0 \$4,371 |
| JOB TOTAL | | | | | | \$56,824 |

LIFE CYCLE COST ANALYSIS SUMMARY STUDY: 4242E02A ENERGY CONSERVATION INVESTMENT PROGRAM (ECIP) LCCID FY95 (92) INSTALLATION & LOCATION: FORT BRAGG REGION NOS. 4 CENSUS: 3
PROJECT NO. & TITLE: 94013.04 LES: ECO2 - NAT GAS INFRARED HEAT
FISCAL YEAR 95 DISCRETE PORTION NAME: ECO
ANALYSIS DATE: 12-12-94 ECONOMIC LIFE 20 YEARS PREPARED BY: G.B. LOFLIN 1. INVESTMENT A. CONSTRUCTION COST \$ 43932. B. SIOH \$ 2197. C. DESIGN COST \$ 2197. D. TOTAL COST (1A+1B+1C) \$ 48326. 0. 0. E. SALVAGE VALUE OF EXISTING EQUIPMENT \$
F. PUBLIC UTILITY COMPANY REBATE \$ E. SALVAGE VALUE OF EXISTING EQUIPMENT \$ G. TOTAL INVESTMENT (1D - 1E - 1F) 48326. 2. ENERGY SAVINGS (+) / COST (-) DATE OF NISTIR 85-3273-X USED FOR DISCOUNT FACTORS OCT 1994 UNIT COST SAVINGS ANNUAL \$ DISCOUNTED HUEL. \$/ MWH(1) MWH/YR(2) SAVINGS(3) FACTOR(4) SAVINGS(5) 9097. 242828. 0. -92907. 0. 0. 0. 159018. 3. NON ENERGY SAVINGS(+) / COST(-) \$ A. ANNUAL RECURRING (+/-) 3421. (1) DISCOUNT FACTOR (TABLE A) 14.88 (2) DISCOUNTED SAVING/COST (3A X 3A1) \$ 50900. B. NON RECURRING SAVINGS(+) / COSTS(-) SAVINGS(+) YR DISCNT DISCOUNTED

COST(-) OC FACTR SAVINGS(+)/

(1) (2) (3) COST(-)(4) ITEM d. TOTAL 0. C. TOTAL NON ENERGY DISCOUNTED SAVINGS(+)/COST(-)(3A2+3Bd4)\$ 50900. 4. FIRST YEAR DOLLAR SAVINGS 2N3+3A+(3Bd1/(YRS ECONOMIC LIFE))\$ 5. SIMPLE PAYBACK PERIOD (1G/4) 3.99 YEARS 6. TOTAL NET DISCOUNTED SAVINGS (2N5+3C) \$ 209918. 7. SAVINGS TO INVESTMENT RATIO (SIR) = (6 / 1G) = (IF < 1 PROJECT DOES NOT QUALIFY) 4.34 8. ADJUSTED INTERNAL RATE OF RETURN (AIRR): 10.85 %

LIFE CYCLE COST ANALYSIS SUMMARY

LIFE CYCLE COST ANALYSIS SUMMARY STUDY: 4242E02B ENERGY CONSERVATION INVESTMENT PROGRAM (ECIP) LCCID FY95 (92) INSTALLATION & LOCATION: FORT BRAGG REGION NOS. 4 CENSUS: 3 PROJECT NO. & TITLE: 94013.04 LES: ECO2 - NAT GAS INFRARED HEAT FISCAL YEAR 95 DISCRETE PORTION NAME: ECO ANALYSIS DATE: 12-12-94 ECONOMIC LIFE 20 YEARS PREPARED BY: G.B. LOFLIN 1. INVESTMENT A. CONSTRUCTION COST \$ 75067. B. SIOH \$ 3753. C. DESIGN COST \$ 3753. D. TOTAL COST (1A+1B+1C) \$ 82573. F. PUBLIC UTILITY COMPANY REBATE \$
G. TOTAL INVESTMENT (1D - 1E - 1F) E. SALVAGE VALUE OF EXISTING EQUIPMENT \$ 0. 0. 2. ENERGY SAVINGS (+) / COST (-) DATE OF NISTIR 85-3273-X USED FOR DISCOUNT FACTORS OCT 1994 UNIT COST SAVINGS ANNUAL \$ DISCOUNT DISCOUNTED \$/ MWH(1) MWH/YR(2) SAVINGS(3) FACTOR(4) SAVINGS(5) 9097. 242828. 0. -92907. 0. 0. Ο. 159018. 3. NON ENERGY SAVINGS(+) / COST(-) \$ 3421. 14.88 \$ 50900. A. ANNUAL RECURRING (+/-) (1) DISCOUNT FACTOR (TABLE A) (2) DISCOUNTED SAVING/COST (3A X 3A1) B. NON RECURRING SAVINGS(+) / COSTS(-) SAVINGS(+) YR DISCNT DISCOUNTED
COST(-) OC FACTR SAVINGS(+)/
(1) (2) (3) COST(-)(4) ITEM d. TOTAL \$ 0. C. TOTAL NON ENERGY DISCOUNTED SAVINGS(+)/COST(-)(3A2+3Bd4)\$ 4. FIRST YEAR DOLLAR SAVINGS 2N3+3A+(3Bd1/(YRS ECONOMIC LIFE))\$ 5. SIMPLE PAYBACK PERIOD (1G/4) 6.82 YEARS 6. TOTAL NET DISCOUNTED SAVINGS (2N5+3C) \$ 209918. 7. SAVINGS TO INVESTMENT RATIO (SIR) = (6 / 1G) = (IF < 1 PROJECT DOES NOT QUALIFY) 2.54 8. ADJUSTED INTERNAL RATE OF RETURN (AIRR): 7.92 %

LIFE CYCLE COST ANALYSIS SUMMARY

BLDG 4242 Date: 23-Nov-94 INSTALL INFARED HEATING SYSTEM COST ESTIMATE Description: LIMITED EEAP(HGR) Bid Date: Project: FORT BRAGG, N.C. Job #: 94013.04 Location: City indx:Raleigh, NC Sq. footage: 6000.00 Description Line # _____ Manhours Matl Labor Equipment Sub ______ 0205541750 PAVEMENT REMOVAL, BITUMINOUS, 4" TO 6" THICK 20.00 S.Y. Unit values 0.10 0.00 1.73 2.50 0.00 Totals 1.90 \$0 \$35 \$50 \$0 \$85 SITE REMOVAL, STEEL PIPE, WELDED CONNECTION, 0205543200 UP TO 4"DIAMETER 500,00 L.F. 2.61 Unit values 0.15 0.00 1.06 0.00 3.68 Totals 75.00 \$0 \$1,306 \$532 \$0 \$1,838 0207180380 HVAC DEMO, BOILER GAS/OIL STL >150MBH 1.00 Ea. Unit values 12.00 0.00 268.07 0.00 0.00 268.07 Totals 12.00 \$0 \$268 \$0 \$0 \$268 0207183600 HVAC DEMO, MECH EOPT HEAVY ITEM 0.50 Ton Unit values 14.55 0.00 314.87 0.00 0.00 314.87 Totals 7.27 \$157 \$0 \$0 \$0 \$157 0208400600 REMOVE PIPE INSULATION UP TO 4" DIAMETER PIPE 500.00 L.F. Unit values 0.07 0.00 1.63 0.20 0.00 1.83 Totals 35.50 \$817 \$0 \$98 \$0 \$915 REMOVE INSULATION FROM PIPE FITTING, UP TO 4" 0208401000 DIAMETER PIPE 75.00 Ea. Unit values 0.20 0.00 4.60 0.56 0.00 5.16 Totals 15.00 \$0 \$345 \$42 \$0 \$387 0222541900 TAMPING TRENCH B'FILL, VIBRATING PLATE, ADD 15.00 C.Y. Unit values 0.09 0.00 1.44 0.55 0.00 1.99 Totals 1.34 \$0 \$22 \$8 \$0 \$30 0222582800 TRENCH EXCVTNG 40HP CHNTRNCHR&BKFL 12"W24"D 150.00 L.F. Unit values 0.01 0.00 0.20 0.20 0.00 0.39 Totals 1.50 \$0 \$29 \$29 \$0 \$58 0251040380 ASPHALTIC CONCRETE PAVEMENT, PAVING, WEARING

| 03 200 7. | | | | | | |
|-----------------------|----------------------------|-------------|-------------|-------------|--------------------------|--------|
| Unit values Totals | COURSE, 2" 0.02 0.30 | 2.96 | 0.27 \$5 | 0.25 \$5 | 20.00 S.Y 0.00 \$0 | 3.48 |
| 0260120200 | BEDDING, FO | OR PIPE IN | TRENCH SA | ND, DEAD O | R 2.50 C.Y | |
| Unit values Totals | 0.16 0.40 | 3.79 \$9 | 2.79 \$7 | 1.13 \$3 | | 7.71 |
| 0260120500 | BEDDING, PI | LACING IN | TRENCH | | 0.50.6.4 | |
| Unit values Totals | 0.09 0.22 | 0.00 \$0 | 1.44 | 0.55 \$1 | 2.50 C.Y 0.00 \$0 | |
| 0266907800 | CUT IN VALV | ves, w/duc | CK TIP GASK | ET, 4" DIA | | |
| Unit values Totals | 1.56 1.56 | | | | 1.00 Ea. 0.00 \$0 | 438.25 |
| 0268520150 | GAS SERVICE | E & DISTRI | B PIPING, P | OLYETHYLEN | E,60- | |
| Unit values | PSI 1-1/4"I 0.06 | 0.63 | 1.10 | 0.00 | 0.00 | 1.72 |

GAS SERVICE&DISTRIB PIPING, SCH40 STEEL PLAIN

\$176

\$131

END, TAR COAT&WRAP 1-1/4" DIAM 0.11 3.40 2.63

\$170

9.60

5.70

\$100

0.15

\$8

\$0

MeansData for Lotus

09-Dec-94

0268520600

Unit values Totals

Totals

Page 2

\$276

6.19

\$309

\$0

0.00

\$0

50.00 L.F.

| Line # | Description | on | | | | | |
|-----------------------|----------------|----------------------|--------------------|----------------------------------|--------|-----------------------------|---|
| | Manhours | Matl | Labor | Equipment | Sub | Total | • |
| ========== | ======= | ====== | | ======== | ====== | ======= | = |
| U02 SITEWORK | 168 | \$742 | \$3,331 | \$781 | \$0 | \$4,854 | |
| 1551153320 | HTG BR GAS | S CI STD I | HTWR GOP 2 | 2000 MBH | | _ | |
| Unit values Totals | 84.21 84.21 | 12487.50 \$12,488 | 1376.38 \$1,376 | 0.00 \$0 | | Ea. 13863.88 \$13,864 | |
| 1554510245 | | | | AS ELEC IGN | | | |
| Unit values Totals | | 0.00 | 0.00 | details) 14841.00 \$14,841 | 0.00 | LS 14841.00 \$14,841 | |
| 1562600137 | | | | JBLE DIAPHRAG | | | |
| Unit values Totals | | 225.77 | 9.14 \$9 | 0.00 \$0 | | Ea. 234.91 \$235 | |
| U15 MECHANICAL | 85 | \$12,714 | \$1,385 | \$14,841 | \$0 | \$28,940 | |

| | | ======== | | ======================================= | =======: | ======== |
|--|--|------------|---------|---|----------|---------------------------------------|
| Line # | Descripti | on | | | | |
| | Manhours | Matl | Labor | Equipment | Sub | Total |
| ======================================= | | | | | | ======= |
| ESTIMATE TOTAL | 253 | \$13,456 | \$4,716 | \$15,622 | \$0 | \$33,794 |
| SALES TAX MATL MARKUP | 0.00% | \$0 \$0 | *- | | | |
| LABOR MARKUP EQUIPT MARKUP SUB MARKUP | 0.00% 0.00% 0.00% | | \$0 | \$0 | \$0 | |
| TOTAL BEFORE CO CONTINGENCY BOND PROFIT | ONTINGENC 20.00% 0.00% 10.00% | \$13,456 | \$4,716 | \$15,622 | \$0 | \$33,794 \$6,759 \$0 \$3,379 |
| JOB TOTAL | | | | | | \$43,932 |

JOB TOTAL

\$43,932

Estimate: BLDG 4242 Date: 23-Nov-94

Description: INSTALL INFARED HEATING SYSTEM COST ESTIMATE Project: LIMITED EEAP(HGR) Bid Date:

FORT BRAGG, N.C. Job #: 94013.04 Location: Sq. footage: 6000.00

Sq. footage: 6000.00 City indx:Raleigh, NC

| | S | UMMARY | | | | |
|---|--|-------------------|--------------------|-------------------|------------|---------------------------------------|
| | Manhours | Matl | Labor | Equipment | Sub | Total |
| ======================================= | | ======= | ====== | | | ======= |
| U02 SITEWORK U15 MECHANICAL | 168 85 | \$742 \$12,714 | \$3,331 \$1,385 | \$781 \$14,841 | \$0 \$0 | \$4,854 \$28,940 |
| TOTAL | 253 | \$13,456 | \$4,716 | \$15,622 | \$0 | \$33,794 |
| SALES TAX MATL MARKUP LABOR MARKUP EQUIPT MARKUP | 0.00% 0.00% 0.00% 0.00% | \$0 \$0 | \$0 | \$0 | | |
| SUB MARKUP | 0.00% | | | 4.5 | \$0 | |
| TOTAL BEFORE CONTINGENCY BOND PROFIT | ONTINGENC 20.00% 0.00% 10.00% | \$13,456 | \$4,716 | \$15,622 | \$0 | \$33,794 \$6,759 \$0 \$3,379 |

```
LIFE CYCLE COST ANALYSIS SUMMARY

ENERGY CONSERVATION INVESTMENT PROGRAM (ECIP)

INSTALLATION & LOCATION: FORT BRAGG REGION NOS. 4 CENSUS: 3

PROJECT NO. & TITLE: 94013.04 LES: ECO2 - NAT GAS INFRARED HEAT
FISCAL YEAR 95 DISCRETE PORTION NAME: ECO
ANALYSIS DATE: 12-12-94 ECONOMIC LIFE 20 YEARS PREPARED BY: G.B. LOFLIN
1. INVESTMENT
                                    174610.
A. CONSTRUCTION COST $
B. SIOH $ 8731.
C. DESIGN COST $ 8731.
D. TOTAL COST (1A+1B+1C) $ 192072.
                                     8731.
8731.
                                                          0.
0.
E. SALVAGE VALUE OF EXISTING EQUIPMENT $
E. SALVAGE VALUE OF EXISTING EQUIPMENT $
F. PUBLIC UTILITY COMPANY REBATE $
G. TOTAL INVESTMENT (1D - 1E - 1F)
                                                                       192072.
2. ENERGY SAVINGS (+) / COST (-)
DATE OF NISTIR 85-3273-X USED FOR DISCOUNT FACTORS OCT 1994
                UNIT COST SAVINGS ANNUAL $ DISCOUNT
                                                                              DISCOUNTED
     FUEL
                $/ MWH(1) MWH/YR(2) SAVINGS(3) FACTOR(4) SAVINGS(5)
    A. ELECT $ 34.95 30. $ 1062. 15.08 $ B. DIST $ 19.18 3588. $ 68822. 18.57 $ C. RESID $ .00 0. $ 0. 21.02 $ D. NAT G $ 13.44 -2297. $ -30872. 18.58 $ E. COAL $ .00 0. $ 0. 16.83 $ F. PPG $ .00 0. $ 0. 16.83 $ M. DEMAND SAVINGS $ 0. 17.38 $ N. TOTAL 1322. $ 39013. $
                                                                                      16022.
                                                                                   1278033.
                                                                                   0.
                                                                                   -573603.
                                                                                   0.
                                                                                          0.
                                                                                          0.
                                                                                    720452.
3. NON ENERGY SAVINGS (+) / COST (-)
   A. ANNUAL RECURRING (+/-)
                                                                                     1954.
                                                                   14.88
         (1) DISCOUNT FACTOR (TABLE A)
                                                                              $ 29069.
         (2) DISCOUNTED SAVING/COST (3A X 3A1)
   B. NON RECURRING SAVINGS(+) / COSTS(-)
                                   SAVINGS(+) YR DISCNT
COST(-) OC FACTR
(1) (2) (3)
                                                                      DISCOUNTED
                                                                      SAVINGS(+)/
COST(-)(4)
    d. TOTAL
                                        0.
   C. TOTAL NON ENERGY DISCOUNTED SAVINGS (+) / COST (-) (3A2+3Bd4)$ 29069.
4. FIRST YEAR DOLLAR SAVINGS 2N3+3A+(3Bd1/(YRS ECONOMIC LIFE))$
5. SIMPLE PAYBACK PERIOD (1G/4)
                                                                                  4.69 YEARS
                                                                               $ 749520.
6. TOTAL NET DISCOUNTED SAVINGS (2N5+3C)
7. SAVINGS TO INVESTMENT RATIO
                                                (SIR) = (6 / 1G) =
                                                                                 3.90
    (IF < 1 PROJECT DOES NOT QUALIFY)
                                                                          10.26 %
8. ADJUSTED INTERNAL RATE OF RETURN (AIRR):
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LIFE CYCLE COST ANALYSIS SUMMARY

ENERGY CONSERVATION INVESTMENT PROGRAM (ECIP)

INSTALLATION & LOCATION: FORT BRAGG REGION NOS. 4 CENSUS: 3 PROJECT NO. & TITLE: 94013.04 LES: ECO2 - NAT GAS INFRARED HEAT FISCAL YEAR 95 DISCRETE PORTION NAME: ECO
ANALYSIS DATE: 12-12-94 ECONOMIC LIFE 20 YEARS PREPARED BY: G.B. 12-12-94 ECONOMIC LIFE 20 YEARS PREPARED BY: G.B. LOFLIN 1. INVESTMENT A. CONSTRUCTION COST \$ 205745. 10287. B. SIOH \$ 10287. C. DESIGN COST \$ 10287. D. TOTAL COST (1A+1B+1C) \$ 226319. 0. 0. E. SALVAGE VALUE OF EXISTING EQUIPMENT \$ F. PUBLIC UTILITY COMPANY REBATE \$ G. TOTAL INVESTMENT (1D - 1E - 1F) 226319. 2. ENERGY SAVINGS (+) / COST (-) DATE OF NISTIR 85-3273-X USED FOR DISCOUNT FACTORS OCT 1994 UNIT COST SAVINGS ANNUAL \$ DISCOUNTED \$/ MWH(1) MWH/YR(2) SAVINGS(3) FACTOR(4) SAVINGS(5) FUEL A. ELECT \$ 34.95 30. \$ 1062. 15.08 \$ B. DIST \$ 19.18 3588. \$ 68822. 18.57 \$ C. RESID \$.00 0. \$ 0. 21.02 \$ D. NAT G \$ 13.44 -2297. \$ -30872. 18.58 \$ E. COAL \$.00 0. \$ 0. 16.83 \$ F. PPG \$.00 0. \$ 0. 16.83 \$ M. DEMAND SAVINGS \$ 0. 17.38 \$ M. DEMAND SAVINGS \$ 0. 14.88 \$ M. TOTAL 1322. \$ 39013. 16022. 1278033. -573603. 0. 0. Ο. 720452. 3. NON ENERGY SAVINGS(+) / COST(-) A. ANNUAL RECURRING (+/-) 1954. 14.88 (1) DISCOUNT FACTOR (TABLE A) (2) DISCOUNTED SAVING/COST (3A X 3A1) \$ 29069. B. NON RECURRING SAVINGS(+) / COSTS(-) SAVINGS(+) YR DISCNT COST(-) OC FACTR (1) (2) (3) DISCOUNTED ITEM SAVINGS(+)/ COST(-)(4)d. TOTAL 0. C. TOTAL NON ENERGY DISCOUNTED SAVINGS(+)/COST(-)(3A2+3Bd4)\$ 29069. 4. FIRST YEAR DOLLAR SAVINGS 2N3+3A+(3Bd1/(YRS ECONOMIC LIFE))\$ 40966. 5. SIMPLE PAYBACK PERIOD (1G/4) 5.52 YEARS 6. TOTAL NET DISCOUNTED SAVINGS (2N5+3C) \$ 749520. 7. SAVINGS TO INVESTMENT RATIO (SIR) = (6 / 1G) =3.31 (IF < 1 PROJECT DOES NOT QUALIFY) 8. ADJUSTED INTERNAL RATE OF RETURN (AIRR): 9.36 %

LIFE CYCLE COST ANALYSIS SUMMARY

______ Estimate: BLDG 7937 23-Nov-94 Date: INSTALL INFARED HEATING SYSTEM COST ESTIMATE Description: LIMITED EEAP(HGR) Bid Date: Project: FORT BRAGG, N.C. Job #: 94013.04 Location: ***** City indx:Raleigh, NC Sq. footage: Description Line # _____ Manhours Matl Labor Equipment Sub _______ 0205541750 PAVEMENT REMOVAL, BITUMINOUS, 4" TO 6" THICK 40.00 S.Y. 1.73 0.00 2.50 Unit values 0.10 0.00 4.23 3.80 \$0 \$69 \$100 \$0 \$169 Totals 0205543200 SITE REMOVAL, STEEL PIPE, WELDED CONNECTION, UP TO 4"DIAMETER 3000.00 L.F. 0.15 2.61 1.06 Unit values 0.00 0.00 3.68 \$7,838 Totals 450.00 \$0 \$3,191 \$0 \$11,029 HVAC DEMO, MECH EQPT HEAVY ITEM 0207183600 3.00 Ton 0.00 314.87 0.00 Unit values 14.55 0.00 314.87 43.64 \$0 \$945 \$0 Totals \$0 \$945 REMOVE PIPE INSULATION UP TO 4" DIAMETER PIPE 0208400600 3000.00 L.F. 0.00 0.20 0.07 1.63 0.00 1.83 Unit values 213.00 \$0 \$4,902 \$587 Totals \$0 \$5,489 0208401000 REMOVE INSULATION FROM PIPE FITTING, UP TO 4" DIAMETER PIPE 400.00 Ea. 0.00 4.60 0.56 Unit values 0.20 0.00 5.16 Totals 80.00 \$0 \$1,838 \$225 \$0 \$2,063 TAMPING TRENCH B'FILL, VIBRATING PLATE, ADD 0222541900 25.00 C.Y. Unit values 0.09 0.00 1.44 0.55 0.00 1.99 Totals \$0 \$36 2.23 \$14 \$0 \$50 0222582800 TRENCH EXCVTNG 40HP CHNTRNCHR&BKFL 12"W24"D 300.00 L.F. Unit values 0.01 0.00 0.20 0.20 0.00 0.39 Totals 3.00 \$0 \$59 \$59 \$0 \$118 0251040380 ASPHALTIC CONCRETE PAVEMENT, PAVING, WEARING COURSE, 2" THICK 40.00 S.Y. 2.96 0.27 0.25 0.00 3.48 Unit values 0.02 Totals \$11 \$0 \$139 0.60 \$118 \$10

| 09-Dec-94 | MeansData | for | Lotus |
|-----------|-----------|-----|-------|

| Dago | 2 |
|------|---|

| 0260120200 | TO TO STILL | | | ND, DEAD OR | _ ^ ^ | C.Y. |
|-----------------------|---------------|-----------------|---------------|-------------|---------------------|-----------------------|
| Unit values Totals | | 3.79 \$19 | | 1.13 \$6 | | 7.71 \$39 |
| 0260120500 | BEDDING, | PLACING IN | TRENCH | | 5 00 | C.Y. |
| Unit values Totals | 0.09 0.45 | 0.00 \$0 | 1.44 \$7 | 0.55 \$3 | 0.00 | 1.99 |
| 0266907800 | CUT IN VA | LVES, W/DUC | K TIP GASK | ET, 4" DIAM | | n - |
| Unit values Totals | 1.56 1.56 | 404.00 \$404 | 29.36 \$29 | 4.89 \$5 | 1.00 0.00 \$0 | 438.25 |
| 0268520150 | GAS SERVI | CE & DISTRI | B PIPING, P | OLYETHYLENE | ,60- | |
| Unit values Totals | 0.06 18.60 | 0.63 \$194 | 1.10 \$340 | 0.00 | 0.00 0.00 \$0 | L.F. 1.72 \$534 |
| 0268520600 | GAS SERVI | CE&DISTRIB | PIPING, SCH | 40 STEEL PL | AIN | |
| Unit values Totals | 0.11 5.70 | 3.40 \$170 | 2.63 \$131 | 0.15 \$8 | 0.00 | 6.19 \$309 |

09-Dec-94

| Line # | Description | on | | | | | |
|-----------------------|------------------|----------------------------|------------|----------------------|------|------------------------|---|
| | Manhours | | | Equipment | | | |
| | ======= | | | | | ======== | • |
| U02 SITEWORK | 824 | \$905 | \$16,219 | \$4,208 | \$0 | \$21,332 | |
| 1531106180 | WTR HTR CM | | | BH 192 GPH | 1.00 | Fa | |
| Unit values Totals | 13.33 | | 226.88 | 0.00 \$0 | 0.00 | 2324.78 \$2,325 | |
| 1551153320 | HTG BR GAS | S CI STD H | HTWR GOP 2 | 2000 MBH | 1 00 | _ | |
| Unit values Totals | 84.21 1 84.21 | | | 0.00 \$0 | | 13863.88 \$13,864 | |
| 1554510245 | HTG CO-RAY | | | GAS ELEC IGN | 1.00 | T.C | |
| Unit values Totals | | 0.00 | 0.00 | 96559.00 \$96,559 | 0.00 | 96559.00 \$96,559 | |
| 1562600137 | | | | BLE DIAPHRA | | | |
| Unit values Totals | | PIPE SI 225.77 \$226 | 9.14 | 0.00 \$0 | | Ea. 234.91 \$235 | |
| U15 MECHANICAL | 99 | \$14,812 | \$1,612 | \$96,559 | \$0 | \$112,983 | |

Page 3

| Line # | Descripti | on | | | | |
|---------------------------------------|------------------------------|------------|----------|-----------|-----|------------------------------|
| | Manhours | Matl | Labor | Equipment | Sub | Total |
| | ======= | ======= | | ======= | | |
| | | | | | | |
| ESTIMATE TOTAL | 923 | \$15,717 | \$17,831 | \$100,767 | \$0 | \$134,315 |
| SALES TAX | 0.00% | \$0 \$0 | | | | |
| MATL MARKUP LABOR MARKUP | 0.00% 0.00% | ŞU | \$0 | | | |
| EQUIPT MARKUP SUB MARKUP | 0.00% 0.00% | | | \$0 | \$0 | |
| | | | | | · | |
| TOTAL BEFORE C CONTINGENCY BOND | ONTINGENC 20.00% 0.00% | \$15,717 | \$17,831 | \$100,767 | \$0 | \$134,315 \$26,863 \$0 |
| PROFIT | 10.00% | | | | | \$13,432 |
| JOB TOTAL | | | | | | \$174,610 |

Estimate: BLDG 7937 Date: 23-Nov-94
Description: INSTALL INFARED HEATING SYSTEM COST ESTIMATE
Project: LIMITED EEAP(HGR) Bid Date:
Location: FORT BRAGG, N.C. Job #: 94013.04
Sq. footage: ******* City indx:Raleigh, NC

| SUMMARY |
|---------|
|---------|

| | 5 | OPH-H-11(1 | | | | |
|--|--|-------------------|---------------------|---|------------|--|
| | Manhours | Matl | Labor | Equipment | Sub | Total |
| ======================================= | ======= | | ====== | ======================================= | | ======= |
| U02 SITEWORK U15 MECHANICAL | 824 99 | \$905 \$14,812 | \$16,219 \$1,612 | \$4,208 \$96,559 | \$0 \$0 | \$21,332 \$112,983 |
| TOTAL | 923 | \$15,717 | \$17,831 | \$100,767 | \$0 | \$134,315 |
| SALES TAX MATL MARKUP LABOR MARKUP | 0.00% 0.00% 0.00% | \$0 \$0 | \$0 | | | |
| EQUIPT MARKUP SUB MARKUP | 0.00% 0.00% | | 1. | \$0 | \$0 | |
| TOTAL BEFORE COCONTINGENCY BOND PROFIT | ONTINGENC 20.00% 0.00% 10.00% | \$15,717 | \$17,831 | \$100,767 | \$0 | \$134,315 \$26,863 \$0 \$13,432 |
| JOB TOTAL | | | | | | \$174,610 |

LIFE CYCLE COST ANALYSIS SUMMARY STUDY: 8944E02A ENERGY CONSERVATION INVESTMENT PROGRAM (ECIP) LCCID FY95 (92) INSTALLATION & LOCATION: FORT BRAGG REGION NOS. 4 CENSUS: 3 PROJECT NO. & TITLE: 94013.04 LES: ECO2 - NAT GAS INFRARED HEAT FISCAL YEAR 95 DISCRETE PORTION NAME: ECO ANALYSIS DATE: 12-12-94 ECONOMIC LIFE 20 YEARS PREPARED BY: G.B. LOFLIN 1. INVESTMENT A. CONSTRUCTION COST \$ 173113. B. SIOH \$ 8656. C. DESIGN COST \$ 8656. D. TOTAL COST (1A+1B+1C) \$ 190425. E. SALVAGE VALUE OF EXISTING EQUIPMENT \$
F. PUBLIC UTILITY COMPANY REBATE \$ 0. 0. \$ 190425. G. TOTAL INVESTMENT (1D - 1E - 1F) 2. ENERGY SAVINGS (+) / COST (-) DATE OF NISTIR 85-3273-X USED FOR DISCOUNT FACTORS OCT 1994 UNIT COST SAVINGS ANNUAL \$ DISCOUNT DISCOUNTED \$/MWH(1) MWH/YR(2) SAVINGS(3) FACTOR(4) SAVINGS(5) FUEL 15.08 \$ 18.57 \$ 27385. 1121078. 0. -405185. 0. 0. 0. 743278. 3. NON ENERGY SAVINGS(+) / COST(-) \$ A. ANNUAL RECURRING (+/-) 14.88 \$ 93063. 6254. (1) DISCOUNT FACTOR (TABLE A) (2) DISCOUNTED SAVING/COST (3A X 3A1) B. NON RECURRING SAVINGS(+) / COSTS(-) SAVINGS(+) YR DISCNT DISCOUNTED

COST(-) OC FACTR SAVINGS(+)/

(1) (2) (3) COST(-)(4) ITEM d. TOTAL 0. C. TOTAL NON ENERGY DISCOUNTED SAVINGS(+)/COST(-)(3A2+3Bd4)\$ 93063. 4. FIRST YEAR DOLLAR SAVINGS 2N3+3A+(3Bd1/(YRS ECONOMIC LIFE))\$ 46633. 5. SIMPLE PAYBACK PERIOD (1G/4) 4.08 YEARS 6. TOTAL NET DISCOUNTED SAVINGS (2N5+3C) \$ 836341. 7. SAVINGS TO INVESTMENT RATIO (SIR) = (6 / 1G) =4.39 (IF < 1 PROJECT DOES NOT QUALIFY) 8. ADJUSTED INTERNAL RATE OF RETURN (AIRR): 10.91 %

LIFE CYCLE COST ANALYSIS SUMMARY

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LIFE CYCLE COST ANALYSIS SUMMARY STUDY: 8944E02B ENERGY CONSERVATION INVESTMENT PROGRAM (ECIP) LCCID FY95 (92)
INSTALLATION & LOCATION: FORT BRAGG REGION NOS. 4 CENSUS: 3
PROJECT NO. & TITLE: 94013.04 LES: ECO2 - NAT GAS INFRARED HEAT FISCAL YEAR 95 DISCRETE PORTION NAME: ECO
ANALYSIS DATE: 12-12-94 ECONOMIC LIFE 20 YEARS PREPARED BY: G.B. LOFLIN
1. INVESTMENT
A. CONSTRUCTION COST $ 204248.

B. SIOH $ 10212.

C. DESIGN COST $ 10212.

D. TOTAL COST (1A+1B+1C) $ 224672.
E. SALVAGE VALUE OF EXISTING EQUIPMENT $
F. PUBLIC UTILITY COMPANY REBATE $
G. TOTAL INVESTMENT (1D - 1E - 1F)
                                                        Ο.
                                                         0.
                                                                    224672.
2. ENERGY SAVINGS (+) / COST (-)
DATE OF NISTIR 85-3273-X USED FOR DISCOUNT FACTORS OCT 1994
              UNIT COST SAVINGS ANNUAL $ DISCOUNT DISCOUNTED $/MWH(1) MWH/YR(2) SAVINGS(3) FACTOR(4) SAVINGS(5)
    FUEL
    15.08
18.57
                                                                                  27385.
                                                                             1121078.
                                                                  21.02
                                                                  18.58
                                                                               -405185.
                                                                                0.
                                                                                      0.
                                                                           $ 0.
$ 743278.
3. NON ENERGY SAVINGS(+) / COST(-)
        NNUAL RECURRING (+/-) $ 6254.

(1) DISCOUNT FACTOR (TABLE A) 14.88

(2) DISCOUNTED SAVING/COST (3A X 3A1) $ 93063.
   A. ANNUAL RECURRING (+/-)
        (1) DISCOUNT FACTOR (TABLE A)
   B. NON RECURRING SAVINGS(+) / COSTS(-)
                                  SAVINGS(+) YR DISCNT DISCOUNTED

COST(-) OC FACTR SAVINGS(+)/

(1) (2) (3) COST(-)(4)
    d. TOTAL
                                                                              0.
   C. TOTAL NON ENERGY DISCOUNTED SAVINGS(+)/COST(-)(3A2+3Bd4)$ 93063.
4. FIRST YEAR DOLLAR SAVINGS 2N3+3A+(3Bd1/(YRS ECONOMIC LIFE))$ 46633.
5. SIMPLE PAYBACK PERIOD (1G/4)
                                                                              4.82 YEARS
6. TOTAL NET DISCOUNTED SAVINGS (2N5+3C)
                                                                          $ 836341.
7. SAVINGS TO INVESTMENT RATIO (SIR) = (6 / 1G) =
                                                                             3.72
    (IF < 1 PROJECT DOES NOT QUALIFY)
                                                                     10.00 %
8. ADJUSTED INTERNAL RATE OF RETURN (AIRR):
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LIFE CYCLE COST ANALYSIS SUMMARY

| • | Estimate: Description: Project: Location: Sq. footage: | BLDG 8944 INSTALL INF LIMITED EEA FORT BRAGG, | ARED HE P(HGR) N.C. | ATING SYST Bid Date: Job #: | 23-Nov-94 23-Nov-94 EM COST EST 94013.04 Raleigh, NO | IMATE | |
|---|--|---|---------------------------|-----------------------------------|--|-----------------------|------------------|
| | Line # | Description | | | | | |
| | ======================================= | Manhours | | | | | Total |
| | 50 | | | | | | |
| | 0205541750 | PAVEMENT RE | MOVAL, | BITUMINOUS | , 4" TO 6" | THICK 40.00 | g v |
| | Unit values Totals | 0.10 3.80 | 0.00 \$0 | 1.73 \$69 | 2.50 \$100 | 0.00 | 4.23 |
| | 0205543200 | | | | | | L.F. |
| | Unit values Totals | 0.15 450.00 | 0.00 \$0 | 2.61 \$7,838 | 1.06 \$3,191 | 0.00 \$0 | 3.68 \$11,029 |
| | 0207183600 | • | | | | 3.00 | Ton |
|) | Unit values Totals | 14.55 43.64 | 0.00 \$0 | 314.87 \$945 | 0.00 | 0.00 | 314.87 \$945 |
| | 0208400600 | REMOVE PIPE | | | | 3000 00 | ם ז |
| | Unit values Totals | 0.07 213.00 | 0.00 \$0 | 1.63 \$4,902 | 0.20 \$587 | 0.00 | 1.83 |
| | 0208401000 | REMOVE INSU DIAMETER PI | | | | | Ea. |
| | Unit values Totals | 0.20 80.00 | 0.00 \$0 | 4.60 \$1,838 | 0.56 \$225 | 0.00 \$0 | |
| | 0222541900 | TAMPING TRE | NCH B'F | ILL, VIBRA | TING PLATE, | ADD 25.00 | CV |
| | Unit values Totals | 0.09 2.23 | 0.00 | 1.44 \$36 | | 0.00 | 1.99 \$50 |
| | 0222582800 | TRENCH EXCV | TNG 40H | P CHNTRNCH | R&BKFL 12"W | | T 17 |
| | Unit values Totals | 0.01 3.00 | 0.00 | 0.20 \$59 | | 300.00 0.00 \$0 | 0.39 \$118 |
| | 0251040380 | ASPHALTIC C | | PAVEMENT, | PAVING, WE | | C V |
| | Unit values Totals | COURSE, 2" 0.02 0.60 | 2.96 \$118 | 0.27 \$11 | 0.25 \$10 | 40.00 0.00 \$0 | 3.48 \$139 |
| | | | | | | | |

| 09-Dec-94 | MeansData for Lotus | Page 2 |
|-----------|---------------------|--------|
|-----------|---------------------|--------|

| 0260120200 | BEDDING, FOR BANK | PIPE IN T | RENCH SAND | , DEAD OR | 5.00 C.Y | |
|-----------------------|--------------------------------|---------------|--------------------------|-------------|--------------------------|---------------|
| Unit values Totals | 0.16 0.80 | | | 1.13 \$6 | 0.00 | 7.71 |
| 0260120500 | BEDDING, PLAC | CING IN TR | ENCH | | E 00 G V | |
| Unit values Totals | 0.09 0.45 | 0.00 | 1.44 \$7 | 0.55 \$3 | 5.00 C.Y 0.00 \$0 | 1.99 \$10 |
| 0266907800 | CUT IN VALVES | s, W/DUCK | TIP GASKET | , 4" DIAME | | |
| Unit values Totals | 1.56 40 1.56 | | | | | 438.25 |
| 0268520150 | GAS SERVICE & | DISTRIB | PIPING, POL | YETHYLENE, | 60- | |
| Unit values Totals | PSI 1-1/4"DIA 0.06 18.60 | 0.63 | 1.10 | 0.00 | 0.00 | 1.72 \$534 |
| 0268520600 | GAS SERVICE&D | DISTRIB PI | PING, SCH40 | STEEL PLA | IN | |
| Unit values Totals | END, TAR COAT& 0.11 5.70 | 3.40 \$170 | 4" DIAM 2.63 \$131 | 0.15 | 50.00 L.F 0.00 \$0 | 6.19 \$309 |

| Line # | Description | on | | | | |
|-------------------------------------|--------------------|-----------------------|--------------------|--|------|-----------------------------|
| | Manhours | Matl | Labor | Equipment | Sub | Total |
| U02 SITEWORK | 824 | \$905 | \$16,219 | \$4,208 | \$0 | \$21,332 |
| 1531106180 Unit values Totals | | STING VENT 2097.90 | Γ | 0.00 | | Ea. 2324.78 \$2,325 |
| 1551153320 Unit values Totals | 84.21 | 12487.50 | | 0.00 | | Ea. 13863.88 \$13,864 |
| 1554510245 Unit values Totals | (See Attac | ched Estin 0.00 | mate for d 0.00 | AS ELEC IGN etails) 95408.00 \$95,408 | 1.00 | LS 95408.00 \$95,408 |
| 1562600137 Unit values Totals | TYPE 1-1/4 0.53 | 1" PIPE SI 225.77 | ZE 9.14 | BLE DIAPHRA 0.00 \$0 | 1.00 | |
| U15 MECHANICAL | 99 | \$14,812 | \$1,612 | \$95,408 | \$0 | \$111,832 |

| ======================================= | ======== | | | | ======= | ======== |
|--|------------------------------|------------|------------|-----------|---------|------------------------------|
| Line # | Descripti | on | | | | |
| | Manhours | Matl | Labor | Equipment | Sub | Total |
| | ======= | ======= | ======= | ======== | | |
| ESTIMATE TOTAL | 923 | \$15,717 | \$17,831 | \$99,616 | \$0 | \$133,164 |
| SALES TAX MATL MARKUP LABOR MARKUP | 0.00% 0.00% 0.00% | \$0 \$0 | ^ 0 | | | |
| EQUIPT MARKUP SUB MARKUP | 0.00% | | \$0 | \$0 | \$0 | |
| TOTAL BEFORE CONTINGENCY BOND | ONTINGENC 20.00% 0.00% | \$15,717 | \$17,831 | \$99,616 | \$0 | \$133,164 \$26,633 \$0 |
| PROFIT | 10.00% | | | | | \$13,316 |
| JOB TOTAL | | | | | | \$173,113 |

Estimate: BLDG 8944 Date: 23-Nov-94

Description: INSTALL INFARED HEATING SYSTEM COST ESTIMATE
Project: LIMITED EEAP(HGR) Bid Date:
Location: FORT BRAGG, N.C. Job #: 94013.04
Sq. footage: ******** City indx:Raleigh, NC

| | SUMMARY | | | | | |
|--|--|-------------------|---------------------|-----------------------|------------|--|
| | Manhours | Matl | Labor | Equipment | Sub | Total |
| | | ======= | | = = = = = = = = = = : | ======= | |
| U02 SITEWORK U15 MECHANICAL | 824 99 | \$905 \$14,812 | \$16,219 \$1,612 | \$4,208 \$95,408 | \$0 \$0 | \$21,332 \$111,832 |
| TOTAL | 923 | \$15,717 | \$17,831 | \$99,616 | \$0 | \$133,164 |
| SALES TAX MATL MARKUP LABOR MARKUP | 0.00% 0.00% 0.00% | \$0 \$0 | \$0 | | | |
| EQUIPT MARKUP SUB MARKUP | 0.00% | | , , | \$0 | \$0 | |
| TOTAL BEFORE CO CONTINGENCY BOND PROFIT | ONTINGENC 20.00% 0.00% 10.00% | \$15,717 | \$17,831 | \$99,616 | \$0 | \$133,164 \$26,633 \$0 \$13,316 |
| JOB TOTAL | | | | | | \$173,113 |

LIFE CYCLE COST ANALYSIS SUMMARY

ENERGY CONSERVATION INVESTMENT PROGRAM (ECIP)

INSTALLATION & LOCATION: FORT BRAGG REGION NOS. 4 CENSUS: 3 PROJECT NO. & TITLE: 94013.04 LES: ECO2 - NAT GAS INFRARED HEAT FISCAL YEAR 95 DISCRETE PORTION NAME: ECO ANALYSIS DATE: 12-12-94 ECONOMIC LIFE 20 YEARS PREPARED BY: G.B. LOFLIN 1. INVESTMENT A. CONSTRUCTION COST \$ 155198.

B. SIOH \$ 7760.

C. DESIGN COST \$ 7760.

D. TOTAL COST (1A+1B+1C) \$ 170718. F. PUBLIC UTILITY COMPANY REBATE \$
G. TOTAL INVESTMENT (1D - 1E - 1F) 0. 0. 170718. 2. ENERGY SAVINGS (+) / COST (-) DATE OF NISTIR 85-3273-X USED FOR DISCOUNT FACTORS OCT 1994 UNIT COST SAVINGS ANNUAL \$ DISCOUNT DISCOUNTED \$/MWH(1) MWH/YR(2) SAVINGS(3) FACTOR(4) SAVINGS(5) FUEL 9935. 858647. \$ 0. \$ -360506. 0. O. 0. 508075. 3. NON ENERGY SAVINGS(+) / COST(-) ANNUAL RECURRING (+/-) \$ 1032. (1) DISCOUNT FACTOR (TABLE A) 14.88 (2) DISCOUNTED SAVING/COST (3A X 3A1) \$ 15351. A. ANNUAL RECURRING (+/-)B. NON RECURRING SAVINGS(+) / COSTS(-) SAVINGS(+) YR DISCNT DISCOUNTED

COST(-) OC FACTR SAVINGS(+)/

(1) (2) (3) COST(-)(4) d. TOTAL \$ 0. C. TOTAL NON ENERGY DISCOUNTED SAVINGS(+)/COST(-)(3A2+3Bd4)\$ 15351. 4. FIRST YEAR DOLLAR SAVINGS 2N3+3A+(3Bd1/(YRS ECONOMIC LIFE))\$ 28526. 5. SIMPLE PAYBACK PERIOD (1G/4) 5.98 YEARS 6. TOTAL NET DISCOUNTED SAVINGS (2N5+3C) \$ 523426. 7. SAVINGS TO INVESTMENT RATIO (SIR) = (6 / 1G) = 3.07 (IF < 1 PROJECT DOES NOT OUALIFY) 8. ADJUSTED INTERNAL RATE OF RETURN (AIRR): 8.93 %

LIFE CYCLE COST ANALYSIS SUMMARY STUDY: 9647EO2B ENERGY CONSERVATION INVESTMENT PROGRAM (ECIP) LCCID FY95 (92) LIFE CYCLE COST ANALYSIS SUMMARY INSTALLATION & LOCATION: FORT BRAGG REGION NOS. 4 CENSUS: 3 PROJECT NO. & TITLE: 94013.04 LES: ECO2 - NAT GAS INFRARED HEAT FISCAL YEAR 95 DISCRETE PORTION NAME: ECO ANALYSIS DATE: 12-12-94 ECONOMIC LIFE 20 YEARS PREPARED BY: G.B. LOFLIN 1. INVESTMENT A. CONSTRUCTION COST \$ 186333. 9317. 9317. B. SIOH C. DESIGN COST \$ 9317. D. TOTAL COST (1A+1B+1C) \$ 204967. E. SALVAGE VALUE OF EXISTING EQUIPMENT \$ Ο. F. PUBLIC UTILITY COMPANY REBATE Ś G. TOTAL INVESTMENT (1D - 1E - 1F) 204967. 2. ENERGY SAVINGS (+) / COST (-) DATE OF NISTIR 85-3273-X USED FOR DISCOUNT FACTORS OCT 1994 UNIT COST SAVINGS ANNUAL \$ DISCOUNT DISCOUNTED FUEL S/ MWH(1) MWH/YR(2) SAVINGS(3) FACTOR(4) SAVINGS(5) 19. 2411. 0. -1444. 0. 0. 659. A. ELECT \$ 34.95 15.08 9935. B. DIST \$ 19.18 C. RESID \$.00 D. NAT G \$ 13.44 46238. 858647. 18.57 21.02 0. 18.58 -19403. -360506. E. COAL \$.00 F. PPG \$.00 M. DEMAND SAVINGS 16.83 0. 0. 17.38 0. 0. 0. 14.88 0. 986. N. TOTAL 27494. 508075. 3. NON ENERGY SAVINGS(+) / COST(-) A. ANNUAL RECURRING (+/-) 1032. (1) DISCOUNT FACTOR (TABLE A) 14.88 (2) DISCOUNTED SAVING/COST (3A X 3A1) 15351. B. NON RECURRING SAVINGS(+) / COSTS(-) SAVINGS(+) YR COST(-) OC DISCOUNTED DISCNT SAVINGS(+)/ ITEM FACTR (1) (2) (3) COST(-)(4)d. TOTAL Ś 0. C. TOTAL NON ENERGY DISCOUNTED SAVINGS(+)/COST(-)(3A2+3Bd4)\$ 15351. 4. FIRST YEAR DOLLAR SAVINGS 2N3+3A+(3Bd1/(YRS ECONOMIC LIFE))S 28526. 5. SIMPLE PAYBACK PERIOD (1G/4) 7.19 YEARS 6. TOTAL NET DISCOUNTED SAVINGS (2N5+3C) \$ 523426. 7. SAVINGS TO INVESTMENT RATIO (SIR) = (6 / 1G) =2.55 (IF < 1 PROJECT DOES NOT QUALIFY) 8. ADJUSTED INTERNAL RATE OF RETURN (AIRR): 7.94 %

| , | | | | | | | |
|---|--|--|-------------------------------------|---|---|------------------------------------|---|
| | Estimate: Description: Project: Location: Sq. footage: | BLDG 964 INSTALL I LIMITED E FORT BRAG | NFARED HI EEAP (HGR) EG. N.C. | Date: Date: EATING SYST Bid Date: Job #: City indx: | 23-Nov-94 EM COST ES 94013.04 Raleigh, N | ======= TIMATE C ======== | ======================================= |
| | Line # | Descripti | .on | | | | |
| | | Manhours | Matl | Labor | | | Total |
| | | | | | | | |
| | 0205541750 | PAVEMENT | REMOVAL, | BITUMINOUS | , 4" TO 6" | THICK 40.00 | c v |
| | Unit values Totals | | | 1.73 \$69 | 2.50 \$100 | 0.00 | |
| | 0205543200 | | | DIPE, WELD | | | L.F. |
| | | 0.15 450.00 | 0.00 | 2.61 \$7,838 | 1.06 \$3,191 | 0.00 | 3.68 \$11,029 |
| | 0207183600 | HVAC DEMO | , MECH EQE | T HEAVY IT | EM | 3.00 | man. |
|) | Unit values Totals | | 0.00 \$0 | 314.87 \$945 | | 0.00 | 314.87 \$945 |
| | 0208400600 | REMOVE PI | PE INSULA | TION UP TO | 4" DIAMET | | |
| | Unit values Totals | 0.07 213.00 | 0.00 \$0 | 1.63 \$4,902 | 0.20 \$587 | 3000.00 0.00 \$0 | 1.83 \$5,489 |
| | 0208401000 | REMOVE IN | | FROM PIPE | | | n - |
| | Unit values Totals | 0.20 80.00 | 0.00 | 4.60 \$1,838 | 0.56 \$225 | 400.00 0.00 \$0 | 5.16 \$2,063 |
| | 0222541900 | TAMPING T | RENCH B'F | 'ILL, VIBRA' | TING PLATE | | C V |
| | Unit values Totals | 0.09 2.23 | 0.00 \$0 | 1.44 \$36 | | | 1.99 \$50 |
| | 0222582800 | TRENCH EX | CVTNG 40H | P CHNTRNCH | R&BKFL 12"V | | T 17 |
| | Unit values Totals | 0.01 3.00 | 0.00 \$0 | 0.20 \$59 | | 300.00 0.00 \$0 | 0.39 \$118 |
| | 0251040380 | ASPHALTIC COURSE, 2 | | PAVEMENT, | PAVING, WE | EARING 40.00 | c v |
| | Unit values Totals | 0.02 0.60 | 2.96 \$118 | 0.27 \$11 | | 0.00 | 3.48 |
| • | | | | | | | |

| 09-Dec-94 | | MeansDat | ta for Lot | us | | Page |
|-----------------------|------------------------------|-----------------|---------------|-------------|------------------------|---------------|
| 0260120200 | BANK | | | • | 5 00 C | V |
| Unit values Totals | 0.16 0.80 | 3.79 \$19 | 2.79 \$14 | 1.13 \$6 | 0.00 | 7.71 |
| 0260120500 | BEDDING, PL | ACING IN | TRENCH | | F 00 G | 37 |
| Unit values Totals | 0.09 0.45 | 0.00 \$0 | 1.44 \$7 | 0.55 \$3 | 5.00 C. 0.00 \$0 | 1.99 |
| 0266907800 | CUT IN VALV | ES, W/DUCH | K TIP GASKI | ET, 4" DIA | | |
| Unit values Totals | 1.56 1.56 | 404.00 \$404 | 29.36 \$29 | 4.89 \$5 | 1.00 Ea 0.00 \$0 | 438 25 |
| 0268520150 | GAS SERVICE | & DISTRIE | PIPING, PO | OLYETHYLEN: | E,60- | _ |
| Unit values Totals | PSI 1-1/4"D 0.06 18.60 | 0.63 \$194 | 1.10 \$340 | 0.00 \$0 | 0.00 L. \$0 | 1.72 \$534 |
| 0268520600 | GAS SERVICE | &DISTRIB I | PIPING, SCH | 10 STEEL P | LAIN | _ |
| Unit values Totals | | 3.40 \$170 | 2.63 \$131 | 0.15 \$8 | 0.00 L. 0.00 \$0 | 6.19 \$309 |

2

U15 MECHANICAL 99

Description ------Labor Equipment Manhours Matl _______ \$905 \$16,219 \$4,208 \$0 824 \$21,332 U02 SITEWORK WTR HTR CML 100<R GAS 200 MBH 192 GPH 1531106180 REUSE EXISTING VENT 1.00 Ea. 13.33 2097.90 0.00 226.88 0.00 2324.78 Unit values 13.33 Totals \$2,098 \$227 \$0 S 0 \$2,325 1551153320 HTG BR GAS CI STD HTWR GOP 2000 MBH 1.00 Ea. Unit values 84.21 12487.50 1376.38 0.00 0.00 13863.88 84.21 \$12,488 \$1,376 Totals \$0 \$0 \$13,864 1554510245 HTG CO-RAY-VAC INFA-RD UNT GAS ELEC IGN (See Attached Estimate for details) 1.00 LS Unit values 0.00 0.00 0.00 81627.00 0.00 81627.00 Totals 0.00 \$0 \$0 \$81,627 \$0 \$81,627 GAS APPLIANCE REGULATORS DOUBLE DIAPHRAGM 1562600137 TYPE 1-1/4" PIPE SIZE 1.00 Ea. 0.53 225.77 9.14 0.00 234.91 Unit values 0.00 0.53 Totals \$226 \$9 \$0 \$0 \$235

\$14,812 \$1,612 \$81,627

\$0

\$98,051

| ======================================= | ======= | .======= | ====== | ======== | ======== | ========= |
|--|-------------------------------|------------|----------|-----------|----------|------------------------------|
| Line # | Descripti | .on | | | | |
| | Manhours | Matl | Labor | Equipment | Sub | Total |
| *========= | ======== | ======= | | ======= | | |
| ESTIMATE TOTAL | 923 | \$15,717 | \$17,831 | \$85,835 | \$0 | \$119,383 |
| SALES TAX MATL MARKUP LABOR MARKUP | 0.00% 0.00% 0.00% | \$0 \$0 | \$0 | | | |
| EQUIPT MARKUP SUB MARKUP | 0.00% 0.00% 0.00% | | ŞU | \$0 | \$0 | |
| TOTAL BEFORE (CONTINGENCY BOND | CONTINGENC 20.00% 0.00% | \$15,717 | \$17,831 | \$85,835 | \$0 | \$119,383 \$23,877 \$0 |
| PROFIT | 10.00% | | | | | \$11,938 |
| JOB TOTAL | | | | | | \$155,198 |

\$155,198

Estimate: BLDG 9647 Date: 23-Nov-94
Description: INSTALL INFARED HEATING SYSTEM COST ESTIMATE

JOB TOTAL

94013.04

Project: LIMITED EEAP(HGR) Bid Date:
Location: FORT BRAGG, N.C. Job #:
Sq. footage: ******* City indx: City indx:Raleigh, NC

| SUMMARY | | | | | | |
|--|--|-------------------|---------------------|---------------------|------------|--|
| | Manhours | Matl | Labor | Equipment | Sub | Total |
| | | | | | | |
| U02 SITEWORK U15 MECHANICAL | 824 99 | \$905 \$14,812 | \$16,219 \$1,612 | \$4,208 \$81,627 | \$0 \$0 | \$21,332 \$98,051 |
| TOTAL | 923 | \$15,717 | \$17,831 | \$85,835 | \$0 | \$119,383 |
| SALES TAX MATL MARKUP LABOR MARKUP | 0.00% 0.00% 0.00% | \$0 \$0 | \$0 | | | |
| EQUIPT MARKUP SUB MARKUP | 0.00% 0.00% | | | \$0 | \$0 | |
| TOTAL BEFORE COCONTINGENCY BOND PROFIT | ONTINGENC 20.00% 0.00% 10.00% | \$15,717 | \$17,831 | \$85,835 | \$0 | \$119,383 \$23,877 \$0 \$11,938 |

ECO - 3 Life Cycle Cost Analyses

LIMITED ENERGY STUDY OF HANGAR FACILITIES AT SIMMONS ARMY AIRFIELD, FT. BRAGG, NC

This section contains the life-cycle cost analyses and construction cost estimates for ECO-3: Install Electric Infrared Heaters. The analyses and estimates are sorted by building number.

LCCA AND COST ESTIMATE: (sorted by building)

9-75

LCCA ECO-3
All Buildings

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LIFE CYCLE COST ANALYSIS SUMMARY
ENERGY CONSERVATION INVESTMENT PROGRAM (ECIP)

STUDY: ECO3TOTY
LCCID FY95 (9
                                                                    FY95 (92)
    INSTALLATION & LOCATION: FORT BRAGG REGION NOS. 4 CENSUS: 3
    PROJECT NO. & TITLE: 94013.04 LES: ECO3 - TOTAL ALL BUILDINGS
    FISCAL YEAR 95 DISCRETE PORTION NAME: ECO
    ANALYSIS DATE: 12-13-94 ECONOMIC LIFE 20 YEARS PREPARED BY: G.B. LOFLIN
    1. INVESTMENT
    A. CONSTRUCTION COST
                                 2163885.
                                 108194.
    B. SIOH
                              $
                              $
                                  108194.
    C. DESIGN COST
    D. TOTAL COST (1A+1B+1C) $ 2380274.
    E. SALVAGE VALUE OF EXISTING EQUIPMENT $
                                                    Ο.
    F. PUBLIC UTILITY COMPANY REBATE
                                                    0.
    G. TOTAL INVESTMENT (1D - 1E - 1F)
                                                            2380274.
    2. ENERGY SAVINGS (+) / COST (-)
    DATE OF NISTIR 85-3273-X USED FOR DISCOUNT FACTORS OCT 1994
                 UNIT COST SAVINGS ANNUAL $ DISCOUNT
                                                                   DISCOUNTED
                 $/ MWH(1) MWH/YR(2) SAVINGS(3)
        FUEL
                                                      FACTOR(4) SAVINGS(5)
        A. ELECT $ 34.95
B. DIST $ 19.18
C. RESID $ .00
D. NAT G $ 13.44
                            -3940.
21205
                                                           15.08
                                           $ -137705.
                                                                     -2076593.
                              21205.
                                            406711.
                                                           18.57
                                                                      7552622.
                                                  0.
                                                                            0.
                                 0.
                                                           21.02
                                                  0.
                                                           18.58
                                                                            0.
                                  0.
        E. COAL $ .00
F. PPG $ .00
                                                  0.
                                  0.
                                                           16.83
                                                                            0.
        F. PPG
                               0.
                                                  0.
                     .00
                                                           17.38
        M. DEMAND SAVINGS
                                          $ -501858.
                                                           14.88
                                                                   $ -7467647.
        N. TOTAL
                              17265.
                                          $ -232852.
                                                                   $ -1991618.
    3. NON ENERGY SAVINGS(+) / COST(-)
       A. ANNUAL RECURRING (+/-)
                                                                       35561.
           (1) DISCOUNT FACTOR (TABLE A)
                                                          14.88
           (2) DISCOUNTED SAVING/COST (3A X 3A1)
                                                                       529148.
       B. NON RECURRING SAVINGS(+) / COSTS(-)
                                SAVINGS(+) YR
                                                             DISCOUNTED
                                                  DISCNT
                                  COST(-)
                   ITEM
                                             OC
                                                  FACTR
                                                             SAVINGS(+)/
                                      (1)
                                            (2)
                                                   (3)
                                                             COST(-)(4)
       d. TOTAL
                                      0.
       C. TOTAL NON ENERGY DISCOUNTED SAVINGS(+)/COST(-)(3A2+3Bd4)$ 529148.
   4. FIRST YEAR DOLLAR SAVINGS 2N3+3A+(3Bd1/(YRS ECONOMIC LIFE))$ -197291.
   5. SIMPLE PAYBACK PERIOD (1G/4)
                                                                   -12.06 YEARS
   6. TOTAL NET DISCOUNTED SAVINGS (2N5+3C)
                                                                 $ -1462471.
    7. SAVINGS TO INVESTMENT RATIO
                                           (SIR) = (6 / 1G) = -.61
       (IF < 1 PROJECT DOES NOT QUALIFY)
**** Project does not qualify for ECIP funding; 4,5,6 for information only.
```

8. ADJUSTED INTERNAL RATE OF RETURN (AIRR):

PAGE 9-2

N/A

LCCA & COST ESTIMATES (sorted by building)

LIFE CYCLE COST ANALYSIS SUMMARY LIFE CYCLE COST ANALYSIS SUMMARY STUDY: 2936ECO3
ENERGY CONSERVATION INVESTMENT PROGRAM (ECIP) LCCID FY95 (92) INSTALLATION & LOCATION: FORT BRAGG REGION NOS. 4 CENSUS: 3 PROJECT NO. & TITLE: 94013.04 LES: ECO3 - ELECTRIC INFRARED HEAT FISCAL YEAR 95 DISCRETE PORTION NAME: ECO ANALYSIS DATE: 12-05-94 ECONOMIC LIFE 20 YEARS PREPARED BY: G.B. LOFLIN 1. INVESTMENT A. CONSTRUCTION COST \$ 223114. 11156. B. SIOH C. DESIGN COST 11156. D. TOTAL COST (1A+1B+1C) \$ 245426. E. SALVAGE VALUE OF EXISTING EQUIPMENT \$ F. PUBLIC UTILITY COMPANY REBATE 0. G. TOTAL INVESTMENT (1D - 1E - 1F) 245426. 2. ENERGY SAVINGS (+) / COST (-)
DATE OF NISTIR 85-3273-X USED FOR DISCOUNT FACTORS OCT 1994 UNIT COST SAVINGS ANNUAL \$ DISCOUNT DISCOUNTED \$/MWH(1) MWH/YR(2) SAVINGS(3) FACTOR(4) SAVINGS(5) FUEL

 -485.
 \$ -16936.

 2024.
 \$ 38819.

 0.
 \$ 0.

 0.
 \$ 0.

 0.
 \$ 0.

 0.
 \$ 0.

 0.
 \$ 0.

 \$ -53835.
 \$ -31952.

 A. ELECT \$ 34.95 B. DIST \$ 19.18 C. RESID \$.00 D. NAT G \$ 13.44 -16936. 15.08 -255391. 18.57 720861. 21.02 18.58 16.83 17.38 14.88 0. 0. E. COAL \$.00 F. PPG \$.00 0. 0. M. DEMAND SAVINGS -801065. N. TOTAL -335594. 3. NON ENERGY SAVINGS(+) / COST(-) A. ANNUAL RECURRING (+/-) 14.88 2574. (1) DISCOUNT FACTOR (TABLE A) (2) DISCOUNTED SAVING/COST (3A X 3A1) \$ 38295. B. NON RECURRING SAVINGS(+) / COSTS(-) SAVINGS(+) YR DISCNT COST(-) OC FACTR DISCOUNTED COST(-) OC (1) (2) ITEM SAVINGS(+)/ (3) COST(-)(4)d. TOTAL 0 -0. C. TOTAL NON ENERGY DISCOUNTED SAVINGS(+)/COST(-)(3A2+3Bd4)\$ 38295. 4. FIRST YEAR DOLLAR SAVINGS 2N3+3A+(3Bd1/(YRS ECONOMIC LIFE))\$ -29379. 5. SIMPLE PAYBACK PERIOD (1G/4) -8.35 YEARS 6. TOTAL NET DISCOUNTED SAVINGS (2N5+3C) \$ -297300. (SIR) = (6 / 1G) =7. SAVINGS TO INVESTMENT RATIO (IF < 1 PROJECT DOES NOT QUALIFY) **** Project does not qualify for ECIP funding; 4,5,6 for information only.

8. ADJUSTED INTERNAL RATE OF RETURN (AIRR):

N/A

Estimate: BLDG 2936 Date: 28-Nov-94
Description: ELECTRIC INFRARED HEATING SYSTEM COST ESTIMATE
Project: LIMITED EEAP(HGR) Bid Date:
Location: FORT BRAGG, N.C Job #: 94013.04 Location: FORT BRAGG, N.C Sq. footage: 28800 City indx:Raleigh, NC Description ______ Manhours Matl Labor Equipment Sub FEEDER INSTALLATION, INCLUDING CONDUIT AND 0913100280 WIRE, 200 AMPERES 4000.00 L.F. 6.71 Unit values 0.31 9.45 0.00 0.00 16.16 Totals \$37,781 \$26,846 1224.00 \$0 \$0 \$64,627 0914100360 SWITCHGEAR INST, INCL SWBD, PANELS & CIRC BKR, 1600 AMPERES 1.00 EACH 4568.40 0.00 \$4,568 \$0 208.17 13519.60 208.17 \$13,520 Unit values 0.00 18088.00 Totals \$0 \$18,088

\$0

\$0

\$82,715

A09 ELECTRICAL 1433 \$51,301 \$31,414

| | ======= | ====== | ======= | ========= | ======= | ======== | | |
|-----------------------|---|-------------------|------------------|-----------------|--------------------|------------------|--|--|
| Line # | Descripti | Description | | | | | | |
| | Manhours | | | Equipment | | Total | | |
| | | | | | | ======== | | |
| 0205541750 | | · | | · | 40 00 | S.Y. | | |
| Unit values Totals | 0.10 3.80 | 0.00 \$0 | 1.73 \$69 | 2.50 \$100 | 0.00 | | | |
| 0205543200 | 4 U D T 3 M T T T T T T T T T T T T T T T T T | | | | | L.F. | | |
| Unit values Totals | 0.15 600.00 | 0.00 \$0 | 2.61 \$10,450 | 1.06 \$4,255 | 0.00 | 3.68 \$14,705 | | |
| 0207183600 | HVAC DEMO | , MECH EQP | T HEAVY II | TEM | 2 00 | Ton | | |
| Unit values Totals | 14.55 29.09 | 0.00 \$0 | 314.87 \$630 | 0.00 | 0.00 | 314.87 \$630 | | |
| 0208400600 | REMOVE PI | PE INSULA | TION UP TO | | ER PIPE 4000.00 | | | |
| Unit values Totals | 0.07 284.00 | 0.00 \$0 | 1.63 \$6,536 | 0.20 \$783 | 0.00 | 1.83 \$7,319 | | |
| 0208401000 | DENMINOUR 1 | `T D D | | | | _ | | |
| Unit values Totals | 0.20 | 0.00 | 4.60 \$2,298 | 0.56 \$281 | 0.00 | 5.16 \$2,579 | | |
| 0222540060 | EXCAV TREI | NCH, COMMOR/BYHOE | ON EARTH, | 1'-4' DEEP, | 1/2 25.00 | CV | | |
| Unit values Totals | 0.08 | 0.00 | 1.47 \$37 | 1.17 \$29 | 0.00 | 2.64 | | |
| 0222541900 | TAMPING TH | RENCH B'F | ILL, VIBRA | TING PLATE, | | C.Y. | | |
| Unit values Totals | 0.09 2.23 | 0.00 \$0 | 1.44 \$36 | 0.55 \$14 | | 1.99 | | |
| 0222543020 | BACKFILL T BUCKET, MI | | .E.LOADER, | WHEEL MTD. | , 1CY 25.00 | CV | | |
| Unit values Totals | 0.03 0.75 | 0.00 \$0 | 0.58 \$14 | 0.48 \$12 | 0.00 | 1.06 \$26 | | |
| 0251040380 | ASPHALTIC COURSE, 2' | | PAVEMENT, | PAVING, WE | ARING 40.00 | c v | | |
| Unit values Totals | 0.02 0.60 | 2.96 \$118 | 0.27 \$11 | 0.25 \$10 | 0.00 | 3.48 \$139 | | |

| Line # | # Description | | | | | | |
|-------------------------------------|--------------------------|--------------------------|---------------------------|------------------------|----------------------|----------------------|--|
| | Manhours | Matl | Labor | Equipment | Sub | Total | |
| U02 SITEWORK | 1023 | \$118 | \$20,081 | \$5,484 | \$0 | \$25,683 | |
| 0331305010 Unit values Totals | 6" THICK 0.02 1.15 | SLAB FOR 1.45 \$70 | NEW TRANS 0.28 \$13 | SFORMER 0.00 \$0 | 48.00 0.00 \$0 | S.F. 1.73 \$83 | |
| U03 CONCRETE | 2 | \$70 | \$13 | \$0 | \$0 | \$83 | |

| ======================================= | | | | | | | | |
|---|----------------|--------------------|------------------|--------------|----------------------|---------------------------|--|--|
| Line # | Description | on | | | | | | |
| | Manhours | Matl | Labor | Equipment | Sub | Total | | |
| | ======= | | ======= | ========= | ====== | ======== | | |
| 1554512050 | HTG INFRA | RED ELEC | 6KW 20478 | BBTU | 14.00 | Fa | | |
| Unit values Totals | 2.67 37.34 | | 44.47 \$623 | 0.00 \$0 | 0.00 | 379.13 | | |
| 1554512100 | HTG INFRA | RED ELEC | 13.5KW 46 | 6075.5BTU | | _ | | |
| Unit values Totals | | 455.20 \$6,373 | | 0.00 | | Ea. 508.44 \$7,118 | | |
| 1554512150 | HTG INFRA | RED ELEC | 27KW 9215 | 51BTU | | _ | | |
| | 4.00 132.00 | 879.31 \$29,017 | 66.55 \$2,196 | 0.00 | | Ea. 945.86 \$31,213 | | |
| 1574205220 | ELECTRIC : | THERMOSTAT | r w/ cover | R AND WIRING | | _ | | |
| Unit values Totals | | 74.93 \$3,521 | 20.81 \$978 | 0.00 \$0 | 47.00 0.00 \$0 | | | |
| U15 MECHANICAL | 262 | \$43,596 | \$4,542 | \$0 | \$0 | \$48,138 | | |

| Line # | Descript: | Description | | | | | | |
|-----------------------|----------------|----------------------|--------------------|-----------------|-----------------------|-----------------------------|--|--|
| | Manhours | Matl | | quipment | | Total | | |
| | ======= | ======== | ======= | | | ======== | | |
| 1611400600 | MINERAL : | INSULATED | CABLE 600V | 1 #4 | 2.00 | | | |
| Unit values Totals | 6.67 20.00 | 402.81 \$1,208 | 103.21 \$310 | 0.00 \$0 | 0.00 \$0 | | | |
| 1611400800 | MINERAL : | INSULATED | CABLE 600V | 1 #2 | 6 00 | 0 T D | | |
| Unit values Totals | 7.27 43.64 | 537.08 \$3,222 | 112.80 \$677 | 0.00 | | C.L.F. 649.88 \$3,899 | | |
| 1621100220 | OUTLET BO | OXES STEEL | , 4" SQ, 2- | 1/8" DEEP, | | 5 . | | |
| Unit values Totals | 0.40 18.80 | 2.36 \$111 | 6.20 \$292 | 0.00 \$0 | 47.00 0.00 \$0 | 8.57 | | |
| 1621100250 | OUTLET BO | OX STEEL 4 | " COVERS BL | ANK | 4.7.00 | _ | | |
| Unit values Totals | 0.13 5.88 | 0.54 \$25 | 1.94 \$91 | 0.00 | 47.00 0.00 \$0 | 2.48 | | |
| 1631200100 | HEATING S | SYSTEM POW | ER / CONTRO | L PANEL | 10.00 | E. | | |
| Unit values Totals | 2.96 29.63 | 320.72 \$3,207 | 45.97 \$460 | 0.00 \$0 | 10.00 0.00 \$0 | 366.69 \$3,667 | | |
| 1641600500 | TRANSFORM | MER OIL PAI | D 15KV 480V | 3P1000KVA | 7 00 | 7 . | | |
| Unit values Totals | 76.92 76.92 | 17408.80 \$17,409 | 1184.40 \$1,184 | 225.60 \$226 | 1.00 0.00 \$0 | | | |
| 1671104800 | UNDERGROU | JND DUCT BA | ANK PVC TYPE | E EB 4 - 2" | | T 173 | | |
| Unit values Totals | 0.13 33.25 | 1.48 \$370 | 2.07 \$517 | 0.00 \$0 | 250.00 0.00 \$0 | L.F. 3.55 \$887 | | |
| U16 ELECTRICAL | 229 | \$25,552 | \$3,531 | \$226 | \$0 | \$29,309 | | |

| | ======== | | ======= | =======: | | ======== |
|--|------------------------------|------------|----------|-----------|-----|------------------------------|
| Line # | Descript | ion | | | | |
| | Manhours | Matl | Labor | Equipment | Sub | Total |
| | ====== | ======= | ====== | | | |
| ESTIMATE TOTAL | 2949 | \$120,637 | \$59,581 | \$5,710 | \$0 | \$185,928 |
| SALES TAX MATL MARKUP LABOR MARKUP | 0.00% 0.00% 0.00% | \$0 \$0 | \$0 | | | |
| EQUIPT MARKUP SUB MARKUP | 0.00% | | γo | \$0 | \$0 | |
| TOTAL BEFORE C CONTINGENCY BOND | ONTINGENC 10.00% 0.00% | \$120,637 | \$59,581 | \$5,710 | \$0 | \$185,928 \$18,593 \$0 |
| PROFIT | 10.00% | | | | | \$18,593 |
| JOB TOTAL | | | | | | \$223,114 |

Estimate: BLDG 2936 Date: 28-Nov-94

Description: ELECTRIC INFRARED HEATING SYSTEM COST ESTIMATE

Project: Location:

LIMITED EEAP(HGR) Bid Date: FORT BRAGG, N.C

Job #: 94013.04

Sq. footage: 28800

City indx:Raleigh, NC

SUMMARY

| | Manhours | Matl | Labor | Equipment | Sub | Total |
|--|--|---------------------------|------------------------------|-----------------------|-------------------|--|
| | | | | | | |
| A09 ELECTRICAL U02 SITEWORK U03 CONCRETE | 1433 1023 2 | \$51,301 \$118 \$70 | \$31,414 \$20,081 \$13 | \$0 \$5,484 \$0 | \$0 \$0 \$0 | \$82,715 \$25,683 \$83 |
| U15 MECHANICAL U16 ELECTRICAL | 262 229 | \$43,596 \$25,552 | \$4,542 \$3,531 | \$0 \$0 \$226 | \$0 \$0 | \$48,138 \$29,309 |
| TOTAL | 2949 | \$120,637 | \$59,581 | \$5,710 | \$0 | \$185,928 |
| SALES TAX MATL MARKUP LABOR MARKUP | 0.00% 0.00% 0.00% | \$0 \$0 | \$0 | | | |
| EQUIPT MARKUP SUB MARKUP | 0.00% | | Şū | \$0 | \$0 | |
| TOTAL BEFORE CO CONTINGENCY BOND PROFIT | ONTINGENC 10.00% 0.00% 10.00% | \$120,637 | \$59,581 | \$5,710 | \$0 | \$185,928 \$18,593 \$0 \$18,593 |
| JOB TOTAL | | | | | | \$223,114 |

LIFE CYCLE COST ANALYSIS SUMMARY STUDY: 3007ECO3
ENERGY CONSERVATION INVESTMENT PROGRAM (ECIP) LCCID FY95 (92) INSTALLATION & LOCATION: FORT BRAGG REGION NOS. 4 CENSUS: 3 PROJECT NO. & TITLE: 94013.04 LES: ECO3 - ELECTRIC INFRARED HEAT FISCAL YEAR 95 DISCRETE PORTION NAME: ECO ANALYSIS DATE: 12-05-94 ECONOMIC LIFE 20 YEARS PREPARED BY: G.B. LOFLIN 1. INVESTMENT A. CONSTRUCTION COST \$ 214760. 10738. B. SIOH 10738. C. DESIGN COST D. TOTAL COST (1A+1B+1C) \$ 236236. E. SALVAGE VALUE OF EXISTING EQUIPMENT \$ 0. F. PUBLIC UTILITY COMPANY REBATE G. TOTAL INVESTMENT (1D - 1E - 1F) 236236. 2. ENERGY SAVINGS (+) / COST (-) DATE OF NISTIR 85-3273-X USED FOR DISCOUNT FACTORS OCT 1994 UNIT COST SAVINGS ANNUAL \$ DISCOUNT DISCOUNTED FACTOR(4) SAVINGS(5) FUEL \$/ MWH(1) MWH/YR(2) SAVINGS(3) -293. \$
1977. \$
0. \$
0. \$
0. \$
0. \$
1684. \$ A. ELECT \$ 34.95 B. DIST \$ 19.18 -293. -10253. 15.08 -154609. 37918. 18.57 704143. 0. 0. 0. C. RESID \$.00 D. NAT G \$ 13.44 0. 21.02 0. 0. 18.58 0. E. COAL \$.00 F. PPG \$.00 Ο. 16.83 0. .00 0. 17.38 0. M. DEMAND SAVINGS \$ -47522. \$ -707127. 14.88 N. TOTAL -19856. -157594. 3. NON ENERGY SAVINGS(+) / COST(-) A. ANNUAL RECURRING (+/-) \$ 338. (1) DISCOUNT FACTOR (TABLE A) 14.88 (2) DISCOUNTED SAVING/COST (3A X 3A1) 5027. B. NON RECURRING SAVINGS(+) / COSTS(-) SAVINGS(+) YR DISCNT DISCOUNTED FACTR COST(-) TTEM OC SAVINGS(+)/ (1) (2) (3) COST(-)(4)d. TOTAL 0. 0. C. TOTAL NON ENERGY DISCOUNTED SAVINGS(+)/COST(-)(3A2+3Bd4)\$ 5027. 4. FIRST YEAR DOLLAR SAVINGS 2N3+3A+(3Bd1/(YRS ECONOMIC LIFE))\$ -19518. 5. SIMPLE PAYBACK PERIOD (1G/4) -12.10 YEARS 6. TOTAL NET DISCOUNTED SAVINGS (2N5+3C) \$ -152567. 7. SAVINGS TO INVESTMENT RATIO (SIR) = (6 / 1G) = -.65(IF < 1 PROJECT DOES NOT QUALIFY) *** Project does not qualify for ECIP funding; 4,5,6 for information only.

LIFE CYCLE COST ANALYSIS SUMMARY

8. ADJUSTED INTERNAL RATE OF RETURN (AIRR):

N/A

28.

Estimate: BLDG 3007 Date: 28-Nov-94 Description: ELECTRIC INFRARED HEATING SYSTEM COST ESTIMATE Project: LIMITED EEAP(HGR) Bid Date: Location: FORT BRAGG, N.C Job #: 94013.04 Sq. footage: 31586 City indx:Raleigh, NC Line # Description _____ Manhours Matl Labor Equipment Sub Total _______ 0913100280 FEEDER INSTALLATION, INCLUDING CONDUIT AND WIRE, 200 AMPERES 4000.00 L.F. 6.71 0.31 9.45 1224.00 \$37,781 0.00 16.16 Unit values 0.00 \$37,781 \$26,846 Totals \$0 \$0 \$64,627 0914100360 SWITCHGEAR INST, INCL SWBD, PANELS & CIRC BKR, 1600 AMPERES 208.17 13519.60 1.00 EACH 4568.40 0.00 Unit values 0.00 18088.00 Totals 208.17 \$13,520 \$0 \$4,568 \$0 \$18,088 A09 ELECTRICAL 1433 \$51,301 \$31,414 \$Û \$0 \$82,715

| ======================================= | | | ======= | | ====== | | | |
|---|--------------------------------|----------------|-----------------|-----------------|-----------------|---|--|--|
| Line # | Description | Description | | | | | | |
| | | | _ | uipment | | Total | | |
| | | | ======= | | ====== | ======================================= | | |
| 0205541750 | PAVEMENT REM | | | | 40 00 | s v | | |
| Unit values Totals | 0.10 3.80 | 0.00 | 1.73 \$69 | 2.50 \$100 | 0.00 | 4.23 | | |
| 0205543200 | SITE REMOVAL 4"DIAMETER | | | | | I, F | | |
| Unit values Totals | 0.15 | 0.00 \$0 \$ | 2.61 10,450 | 1.06 \$4,255 | 0.00 | 3.68 \$14,705 | | |
| 0207183600 | HVAC DEMO, ME | CH EQPT H | EAVY ITEM | | 2.00 | Ton | | |
| Unit values Totals | 14.55 29.09 | 0.00 | 314.87 \$630 | 0.00 | 0.00 | 314.87 \$630 | | |
| 0208400600 | REMOVE PIPE | INSULATIO | N UP TO 4' | | PIPE 4000.00 | т. 🗜 | | |
| Unit values Totals | 0.07 284.00 | 0.00 | 1.63 \$6,536 | 0.20 | 0.00 | 1.83 \$7,319 | | |
| 0208401000 Unit values Totals | DILLEMENT DID | - | | O.56 \$281 | | _ | | |
| 0222540060 | EXCAV TRENCH, CY TRAC/LDR/H | COMMON | EARTH, 1'- | 4' DEEP, | 1/2 25.00 | CV | | |
| Unit values Totals | 0.08 2.00 | 0.00 | 1.47 \$37 | 1.17 \$29 | 0.00 | | | |
| 0222541900 | TAMPING TREN | CH B'FILL | , VIBRATIN | IG PLATE, | ADD 25.00 | CV | | |
| Unit values Totals | 0.09 2.23 | 0.00 | 1.44 \$36 | 0.55 \$14 | 0.00 | 1.99 \$50 | | |
| 0222543020 | BACKFILL TREE BUCKET, MIN F | | LOADER, WH | HEEL MTD., | 1CY 25.00 | C V | | |
| Unit values Totals | 0.03 0.75 | 0.00 | 0.58 \$14 | 0.48 \$12 | 0.00 | 1.06 \$26 | | |
| 0251040380 | ASPHALTIC CON COURSE, 2" TH | | VEMENT, PA | VING, WEA | RING 40.00 | S.Y. | | |
| Unit values Totals | 0.02 0.60 | 2.96 \$118 | 0.27 \$11 | 0.25 \$10 | 0.00 | 3.48 \$139 | | |

U03 CONCRETE 2

\$83

\$0

| Line # | Description | | | | | | |
|---|--------------|--------------|--------------|-------------|-------|--------------|--|
| | Manhours | Matl | Labor | Equipment | Sub | Total | |
| ======================================= | | | | | | | |
| U02 SITEWORK | 1023 | \$118 | \$20,081 | \$5,484 | \$0 | \$25,683 | |
| 0331305010 | 6" THICK | SLAB FOR | NEW TRANS | SFORMER | 48.00 | c E | |
| Unit values Totals | 0.02 1.15 | 1.45 \$70 | 0.28 \$13 | 0.00 \$0 | 0.00 | 1.73 \$83 | |
| | | | | | | | |

\$13

\$0

\$70

| Line # | Description | | | | | | |
|------------------------|-------------|--------------------|----------------|--------------|-------|--------------------|--|
| | Manhours | Matl | Labor | Equipment | Sub | Total | |
| ========= | ======= | .====== | | | | | |
| 1554512050 | HTG INFRA | RED ELEC | 6KW 20478 | BBTU | 7.00 | Ea. | |
| .Unit values Totals | | 334.67 \$2,343 | 44.47 \$311 | | 0.00 | | |
| 1554512100 | HTG INFRA | RED ELEC | 13.5KW 4 | 6075.5BTU | 7.00 | Fa | |
| Unit values Totals | | 455.20 \$3,186 | 53.24 \$373 | 0.00 \$0 | 0.00 | | |
| 1554512150 | HTG INFRA | RED ELEC | 27KW 9219 | 51BTU | 22.00 | Π- | |
| Unit values Totals | | 879.31 \$29,017 | | 0.00 \$0 | | 945.86 \$31,213 | |
| 1574205220 | ELECTRIC | THERMOSTAT | W/ COVE | R AND WIRING | 40.00 | 7- | |
| Unit values Totals | | 74.93 \$2,997 | | | | 95.74 \$3,829 | |
| U15 MECHANICAL | 214 | \$37,543 | \$3,712 | \$0 | \$0 | \$41,255 | |

| Line # | Description | on | | | | |
|-----------------------|----------------|----------------------|--------------------|-----------------|-----------------|----------------------|
| | Manhours | Matl | | Equipment | Sub | Total |
| | | | | | | |
| 1611400600 | MINERAL II | NSULATED C | CABLE 600 | V 1 #4 | 3 00 | C.L.F. |
| Unit values Totals | 6.67 20.00 | 402.81 \$1,208 | 103.21 \$310 | 0.00 \$0 | 0.00 | 506.02 \$1,518 |
| 1611400800 | MINERAL II | NSULATED C | CABLE 600 | V 1 #2 | 6 00 | C.L.F. |
| Unit values Totals | 7.27 43.64 | 537.08 \$3,222 | 112.80 \$677 | 0.00 \$0 | 0.00 | 649.88 \$3,899 |
| 1621100220 | OUTLET BOX | XES STEEL, | 4" SQ, 2 | -1/8" DEEP, | 1" 40.00 | Fo |
| Unit values Totals | 0.40 | 2.36 \$94 | 6.20 \$248 | 0.00 \$C | 0.00 | 8.57 \$342 |
| 1621100250 | OUTLET BOX | X STEEL 4" | COVERS B | LANK | 40.00 | E o |
| Unit values Totals | 0.13 5.00 | 0.54 \$21 | 1.94 \$78 | 0.00 \$0 | 0.00 | 2.48 \$99 |
| 1631200100 | HEATING S | YSTEM POWE | R / CONTRO | OL PANEL | 10.00 | E a |
| Unit values Totals | 2.96 29.63 | 320.72 \$3,207 | 45.97 \$460 | 0.00 \$0 | 0.00 | 366.69 \$3,667 |
| 1641600500 | TRANSFORM | ER OIL PAD | 15KV 480 | V 3P1000KVA | 1.00 | E- |
| Unit values Totals | 76.92 76.92 | 17408.80 \$17,409 | 1184.40 \$1,184 | 225.60 \$226 | 0.00 | 18818.80 \$18,819 |
| 1671104800 | UNDERGROUN | ND DUCT BA | NK PVC TY | PE EB 4 - 2 | " DIA 250.00 | T 17 |
| Unit values Totals | 0.13 33.25 | 1.48 \$370 | 2.07 \$517 | 0.00 \$0 | 0.00 | 3.55 \$887 |
| U16 ELECTRICAL | 225 | \$25,531 | \$3,474 | \$226 | \$0 | \$29,231 |

| Line # | Description | | | | | | | | | |
|-------------------------------|---------------------|------------|----------|-----------|-----|-----------------------|--|--|--|--|
| | Manhours | Matl | Labor | Equipment | Sub | Total | | | | |
| | | ====== | | | | | | | | |
| ESTIMATE TOTAL | 2897 | \$114,563 | \$58,694 | \$5,710 | \$0 | \$178,967 | | | | |
| SALES TAX MATL MARKUP | 0.00% | \$0 \$0 | | | | | | | | |
| LABOR MARKUP EQUIPT MARKUP | 0.00% | 4 - | \$0 | \$0 | | | | | | |
| SŨB MARKUP | 0.00% | | | · | \$0 | | | | | |
| CONTINGENCY | ONTINGENC 10.00% | \$114,563 | \$58,694 | \$5,710 | \$0 | \$178,967 \$17,897 | | | | |
| BOND PROFIT | 0.00% 10.00% | | | | | \$0 \$17,897 | | | | |
| JOB TOTAL | | | | | | \$214.760 | | | | |

Estimate: BLDG 3007 Date: 28-Nov-94

Description: ELECTRIC INFRARED HEATING SYSTEM COST ESTIMATE Project: LIMITED EEAP(HGR) Bid Date:

FORT BRAGG, N.C Job #: Location: 94013.04 City indx:Raleigh, NC Sq. footage: 31586

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| | • | SOMMAN | | | | |
|--|--|---|--|---------------------------------------|---------------------------------|--|
| | Manhours | Matl | Labor | Equipment | Sub | Total |
| | ======= | | ====== | ======= | | |
| A09 ELECTRICAL U02 SITEWORK U03 CONCRETE U15 MECHANICAL U16 ELECTRICAL | 1433 1023 2 214 225 | \$51,301 \$118 \$70 \$37,543 \$25,531 | \$31,414 \$20,081 \$13 \$3,712 \$3,474 | \$0 \$5,484 \$0 \$0 \$226 | \$0 \$0 \$0 \$0 \$0 | \$82,715 \$25,683 \$83 \$41,255 \$29,231 |
| TOTAL | 2897 | \$114,563 | \$58,694 | \$5,710 | \$0 | \$178,967 |
| SALES TAX MATL MARKUP LABOR MARKUP EQUIPT MARKUP | 0.00% 0.00% 0.00% | \$0 \$0 | \$0 | \$0 | | |
| SUB MARKUP | 0.00% | | | | \$0 | |
| TOTAL BEFORE CO CONTINGENCY BOND PROFIT | ONTINGENC 10.00% 0.00% 10.00% | \$114,563 | \$58,694 | \$5,710 | \$0 | \$178,967 \$17,897 \$0 \$17,897 |
| JOB TOTAL | | | | | | \$214,760 |

LIFE CYCLE COST ANALYSIS SUMMARY STUDY: 3262ECO3
ENERGY CONSERVATION INVESTMENT PROGRAM (ECIP) LCCID FY95 (92)
INSTALLATION & LOCATION: FORT BRAGG REGION NOS. 4 CENSUS: 3 PROJECT NO. & TITLE: 94013.04 LES: ECO3 - ELECTRIC INFRARED HEAT FISCAL YEAR 95 DISCRETE PORTION NAME: ECO ANALYSIS DATE: 12-05-94 ECONOMIC LIFE 20 YEARS PREPARED BY: G.B. LOFLIN 1. INVESTMENT A. CONSTRUCTION COST 164675. 8234. B. SIOH 8234. C. DESIGN COST D. TOTAL COST (1A+1B+1C) \$ 181143. E. SALVAGE VALUE OF EXISTING EQUIPMENT \$ 0. Ο. F. PUBLIC UTILITY COMPANY REBATE 181143. G. TOTAL INVESTMENT (1D - 1E - 1F) 2. ENERGY SAVINGS (+) / COST (-) DATE OF NISTIR 85-3273-X USED FOR DISCOUNT FACTORS OCT 1994 UNIT COST SAVINGS ANNUAL \$ DISCOUNTED FUEL S / MWH(1) MWH/YR(2) SAVINGS(3) FACTOR (4) SAVINGS (5) -870. \$ -30392.
2023. \$ 38804.
0. \$ 0.
0. \$ 0.
0. \$ 0.
0. \$ 0.
1154. \$ -33074. -870. A. ELECT \$ 34.95 B. DIST \$ 19.18 C. RESID \$.00 D. NAT G \$ 13.44 15.08 -458314. 18.57 720594. 0. 0. 21.02 0. 18.58 E. COAL \$.00 F. PPG \$.00 16.83 0. 17.38 M. DEMAND SAVINGS 14.88 -617312. N. TOTAL -355031. 3. NON ENERGY SAVINGS(+) / COST(-) A. ANNUAL RECURRING (+/-)2786. (1) DISCOUNT FACTOR (TABLE A) 14.88 (2) DISCOUNTED SAVING/COST (3A X 3A1) 41455. B. NON RECURRING SAVINGS(+) / COSTS(-) SAVINGS(+) YR DISCNT DISCOUNTED COST(-) FACTR OC SAVINGS(+)/ (1) (2) (3) COST(-)(4) d. TOTAL 0. 0. C. TOTAL NON ENERGY DISCOUNTED SAVINGS (+) / COST (-) (3A2+3Bd4)\$ 41455. 4. FIRST YEAR DOLLAR SAVINGS 2N3+3A+(3Bd1/(YRS ECONOMIC LIFE))\$ -30288. 5. SIMPLE PAYBACK PERIOD (1G/4) -5.98 YEARS 6. TOTAL NET DISCOUNTED SAVINGS (2N5+3C) \$ -313577. 7. SAVINGS TO INVESTMENT RATIO (IF < 1 PROJECT DOES NOT QUALIFY) (SIR) = (6 / 1G) = -1.73**** Project does not qualify for ECIP funding; 4,5,6 for information only.

8. ADJUSTED INTERNAL RATE OF RETURN (AIRR):

N/A

Description: ELECTRIC INFRARED HEATING SYSTEM COST ESTIMATE Project: LIMITED EEAP(HGR) Bid Date:

Location: FORT BRAGG, N.C Job #: 94013 04 Sq. footage: 25877 City indx:Raleigh, NC ________ Line # Description Manhours Matl Labor Equipment Sub Total ______ 0913100280 FEEDER INSTALLATION, INCLUDING CONDUIT AND WIRE, 200 AMPERES 0.31 9.45 3000.00 L.F. 6.71 Unit values 0.00 0.00 16.16 Totals 918.00 \$28,336 \$20,135 \$0 \$0 \$48,471 0914100280 SWITCHGEAR INST, INCL SWBD, PANELS & CIRC BKR, 800 AMPERES 1.00 EACH Unit values 96.93 7986.75 2129.10 0.00 \$7,987 \$2,129 \$0 7986.75 0.00 10115.85 Totals 96.93 \$0 \$10,116 A09 ELECTRICAL 1015 \$36,323 \$22,264 \$0 \$0 \$58,587

| ======================================= | ======== | | | | ======: | |
|---|----------------------------------|--------------|-------------------|-----------------|------------------------|-------------------|
| Line # | Description | on | | | | |
| | Manhours | | | Equipment | | Total |
| | ======== | :======: | | ======== | ======= | ======== |
| 0205541750 | PAVEMENT I | REMOVAL, I | BITUMINOUS, | 4" TO 6" | THICK 30.00 | S V |
| Unit values Totals | 0.10 2.85 | 0.00 \$0 | | 2.50 \$75 | 0.00 | 4.23 \$127 |
| 0205543200 | SITE REMOV | מיב | | | 2000 | T 17 |
| Unit values Totals | 0.15 300.00 | 0.00 \$0 | 2.61 \$5,225 | 1.06 \$2,128 | 2000.00 0.00 \$0 | 3.68 \$7,353 |
| 0207183600 | HVAC DEMO | MECH EQP | r HEAVY ITE | EM | 4 00 | _ |
| Unit values Totals | 14.55 58.18 | 0.00 \$0 | 314.87 \$1,259 | | | 314.87 \$1,259 |
| 0208400600 | REMOVE PI | PE INSULAT | TION UP TO | 4" DIAMETE | | |
| Unit values Totals | 0.07 142.00 | 0.00 | | 0.20 \$391 | | 1.83 \$3,659 |
| 0208401000 Unit values | REMOVE INS DIAMETER I 0.20 | TPE | | • | 250 00 | Ea. |
| Totals | 50.00 | \$0 | \$1,149 | 0.56 \$140 | \$0 | \$1,289 |
| 0222540060 | EXCAV TREN | ICH, COMMO | ON EARTH, 1 | '-4' DEEP, | 1/2 20.00 | С. Ү. |
| Unit values Totals | 0.08 [°] 1.60 | 0.00 | 1.47 \$29 | 1.17 \$23 | 0.00 | 2.64 \$52 |
| 0222541900 | TAMPING TR | ENCH B'FI | LL, VIBRAT | ING PLATE, | ADD | CV |
| Unit values Totals | 0.09 1.78 | 0.00 \$0 | 1.44 \$29 | 0.55 \$11 | 20.00 0.00 \$0 | 1.99 \$40 |
| 0222543020 | BACKFILL T BUCKET, MI | | E.LOADER, | WHEEL MTD. | | CV |
| Unit values Totals | 0.03 0.60 | 0.00 \$0 | 0.58 \$12 | 0.48 \$10 | 20.00 0.00 \$0 | 1.06 |
| 0251040380 | ASPHALTIC COURSE, 2" | | PAVEMENT, | PAVING, WE | ARING 30.00 | c v |
| Unit values Totals | 0.02 0.45 | 2.96 \$89 | 0.27 \$8 | 0.25 \$7 | 0.00 | 3.48 \$104 |

| Line # | Description | | | | | | | | |
|---------------------------|-------------|----------|-----------|-----------------|-------|----------|--|--|--|
| | Manhours | Matl | Labor | Equipment | Sub | Total | | | |
| U02 SITEWORK | 558 | \$89 | \$11,031 | \$2,785 | \$0 | \$13,905 | | | |
| 0331305010 Unit values | 6" THICK | SLAB FOR | NEW TRANS | SFORMER 0.00 | 48.00 | S.F. | | | |
| Totals | 1.15 | \$70 | \$13 | \$0 | \$0 | \$83 | | | |
| U03 CONCRETE | 2 | \$70 | \$13 | \$0 | \$0 | \$83 | | | |

| Line # | Descripti | .on | | | | |
|-----------------------|----------------|--------------------|------------------|-------------|----------------------|-------------------|
| | Manhours | Matl | Labor | Equipment | Sub | Total |
| | | | | | ====== | |
| 1554512050 | HTG INFRA | RED ELEC | 6KW 20478 | BTU | 10.00 | Π- |
| Unit values Totals | 2.67 26.67 | 334.67 \$3,347 | 44.47 \$445 | 0.00 \$0 | 10.00 0.00 \$0 | 379.13 \$3,792 |
| 1554512100 | HTG INFRA | RED ELEC | 13.5KW 46 | 075.5BTU | 10.00 | n - |
| Unit values Totals | 3.20 32.00 | 455.20 \$4,552 | 53.24 \$532 | 0.00 \$0 | 10.00 0.00 \$0 | 508.44 \$5,084 |
| 1554512150 | HTG INFRA | RED ELEC | 27KW 9215 | 31BTU | 26.00 | 77 |
| Unit values Totals | 4.00 104.00 | 879.31 \$22,862 | 66.55 \$1,730 | 0.00 \$0 | 26.00 0.00 \$0 | 945.86 |
| 1574205220 | ELECTRIC | THERMOSTAT | W/ COVER | AND WIRING | 26.00 | |
| Unit values Totals | 1.00 36.00 | 74.93 \$2,697 | 20.81 \$749 | 0.00 \$0 | 36.00 0.00 \$0 | 95.74 |
| U15 MECHANICAL | 199 | \$33,458 | \$3,456 | \$0 | \$0 | \$36,914 |

| Line # | Descripti | .on | | | | |
|-----------------------|----------------|-------------------|--------------------|-------------|-----------------------|-------------------|
| | Manhours | Matl | | quipment | | Total |
| | | ======= | | | ====== | ======== |
| 1611400600 | MINERAL I | NSULATED | CABLE 600V | 1 #4 | 2 50 | C.L.F. |
| Unit values Totals | 6.67 16.67 | 402.81 \$1,007 | 103.21 \$258 | 0.00 \$0 | 0.00 | 506.02 |
| 1611400800 | MINERAL I | NSULATED | CABLE 600V | 1 #2 | F 00 | C.L.F. |
| Unit values Totals | 7.27 36.37 | | 112.80 \$564 | | 0.00 | 649.88 |
| 1621100220 | OUTLET BO | XES STEEL | , 4" SQ, 2- | 1/8" DEEP, | | T. a. |
| Unit values Totals | 0.40 14.40 | 2.36 \$85 | 6.20 \$223 | 0.00 \$0 | 36.00 0.00 \$0 | 8.57 |
| 1621100250 | OUTLET BO | X STEEL 4 | " COVERS BL | ANK | 36.00 | E-a |
| Unit values Totals | 0.13 4.50 | 0.54 \$19 | 1.94 \$70 | 0.00 \$0 | 0.00 | 2.48 |
| 1631200100 | HEATING S | YSTEM POW | ER / CONTRO | L PANEL | 0.00 | П- |
| Unit values Totals | 2.96 26.67 | 320.72 \$2,886 | 45.97 \$414 | 0.00 | 9.00 0.00 \$0 | 366.69 \$3,300 |
| 1641600500 | TRANSFORM | ER OIL PAI | D 15KV 480V | 3P1000KVA | 1 00 | D- |
| Unit values Totals | 76.92 76.92 | | 1184.40 \$1,184 | | 1.00 0.00 \$0 | |
| 1671104800 | UNDERGROU | ND DUCT BA | ANK PVC TYPI | E EB 4 - 2' | | |
| Unit values Totals | 0.13 26.60 | 1.48 \$296 | 2.07 \$414 | 0.00 \$0 | 200.00 0.00 \$0 | 3.55 \$710 |
| U16 ELECTRICAL | 203 | \$24,387 | \$3,127 | \$226 | \$0 | \$27,740 |

| =========== | | ======= | | ======== | | ======== | | | |
|--|------------------------------|------------|----------|-----------|-----|------------------------------|--|--|--|
| Line # | Description | | | | | | | | |
| | Manhours | Matl | Labor | Equipment | Sub | Total | | | |
| | ======= | | | | | | | | |
| ESTIMATE TOTAL | 1977 | \$94,327 | \$39,891 | \$3,011 | \$0 | \$137,229 | | | |
| SALES TAX MATL MARKUP LABOR MARKUP | 0.00% 0.00% 0.00% | \$0 \$0 | \$0 | | | | | | |
| EQUIPT MARKUP SUB MARKUP | 0.00% | | 4.5 | \$0 | \$0 | | | | |
| TOTAL BEFORE COCONTINGENCY BOND | ONTINGENC 10.00% 0.00% | \$94,327 | \$39,891 | \$3,011 | \$0 | \$137,229 \$13,723 \$0 | | | |
| PROFIT | 10.00% | | | | | \$13,723 | | | |
| JOB TOTAL | | | | | | \$164,675 | | | |

Estimate: BLDG 3262 Date: 28-Nov-94

Description: ELECTRIC INFRARED HEATING SYSTEM COST ESTIMATE

LIMITED EEAP(HGR) Bid Date: Project:

FORT BRAGG, N.C Job #: 94013.04 Location: City indx:Raleigh, NC Sq. footage: 25877

| | SUMMARY | | | | | | | |
|--|--|--|--|---------------------------------------|----------------------------|--|--|--|
| | Manhours | Matl | Labor | Equipment | Sub | Total | | |
| | | | | | | | | |
| A09 ELECTRICAL U02 SITEWORK U03 CONCRETE U15 MECHANICAL U16 ELECTRICAL | 1015 558 2 199 203 | \$36,323 \$89 \$70 \$33,458 \$24,387 | \$22,264 \$11,031 \$13 \$3,456 \$3,127 | \$0 \$2,785 \$0 \$0 \$226 | \$ \$ \$ \$ \$ \$ \$ \$ \$ | \$58,587 \$13,905 \$83 \$36,914 \$27,740 | | |
| TOTAL: | 1977 | \$94,327 | \$39,891 | \$3,011 | \$0 | \$137,229 | | |
| SALES TAX MATL MARKUP LABOR MARKUP EQUIPT MARKUP | 0.00% 0.00% 0.00% 0.00% | \$0 \$0 | \$0 | \$0 | | | | |
| SUB MARKUP | 0.00% | | | Ų | \$0 | | | |
| TOTAL BEFORE CO CONTINGENCY BOND PROFIT | ONTINGENC 10.00% 0.00% 10.00% | \$94,327 | \$39,891 | \$3,011 | \$0 | \$137,229 \$13,723 \$0 \$13,723 | | |
| JOB TOTAL | | | | | | \$164,675 | | |

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LIFE CYCLE COST ANALYSIS SUMMARY

ENERGY CONSERVATION INVESTMENT PROGRAM (ECIP)

INSTALLATION & LOCATION: FORT BRAGG REGION NOS. 4 CENSUS: 3
    PROJECT NO. & TITLE: 94013.04 LES: ECO3 - ELECTRIC INFRARED HEAT
    FISCAL YEAR 95 DISCRETE PORTION NAME: ECO
    ANALYSIS DATE: 12-05-94 ECONOMIC LIFE 20 YEARS PREPARED BY: G.B. LOFLIN
    1. INVESTMENT
    A. CONSTRUCTION COST $
                                      105584.
                                     5279.
                                  $
    B. SIOH
                                        5279.
    C. DESIGN COST
    D. TOTAL COST (1A+1B+1C) $ 116142.
    E. SALVAGE VALUE OF EXISTING EQUIPMENT $
                                                         Ο.
    E. SALVAGE VALUE OF EXISTING EQUIPMENT $
F. PUBLIC UTILITY COMPANY REBATE $
                                                         0.
    G. TOTAL INVESTMENT (1D - 1E - 1F)
                                                                   116142.
    2. ENERGY SAVINGS (+) / COST (-)
    DATE OF NISTIR 85-3273-X USED FOR DISCOUNT FACTORS OCT 1994
                  UNIT COST SAVINGS ANNUAL $ DISCOUNT DISCOUNTED $/ MWH(1) MWH/YR(2) SAVINGS(3) FACTOR(4) SAVINGS(5)
                               -130. $ -4545.

828. $ 15885.

0. $ 0.

0. $ 0.

0. $ 0.

0. $ 0.

0. $ 0.

698. $ -24975.
        A. ELECT $ 34.95
B. DIST $ 19.18
C. RESID $ .00
D. NAT G $ 13.44
                                                   -4545.
                                                                 15.08
                                                                              -68532.
                                                                 18.57
                                                                              294986.
                                                                21.02
                                                                                   0.
                                                                          $ 0.
$ 0.
$ 0.
$ -371628.
$ -145174.
                                                              18.58
16.83
17.38
14.88
        E. COAL $ .00
        F. PPG $
                      .00
        M. DEMAND SAVINGS
        N. TOTAL
    3. NON ENERGY SAVINGS (+) / COST (-)
                                                                         $
       A. ANNUAL RECURRING (+/-)
                                                               14.88 $ 77210.
                                                                               5189.
            (1) DISCOUNT FACTOR (TABLE A)
            (2) DISCOUNTED SAVING/COST (3A X 3A1)
       B. NON RECURRING SAVINGS(+) / COSTS(-)
                                   SAVINGS(+) YR
                                                      DISCNT DISCOUNTED
                                     COST(-) UC (2)
                                                 OC FACTR
                                                                  SAVINGS(+)/
                                                        (3)
                                                                   COST(-)(4)
        d. TOTAL
                                        0.
       C. TOTAL NON ENERGY DISCOUNTED SAVINGS(+)/COST(-)(3A2+3Bd4)$ 77210.
    4. FIRST YEAR DOLLAR SAVINGS 2N3+3A+(3Bd1/(YRS ECONOMIC LIFE))$ -8446.
    5. SIMPLE PAYBACK PERIOD (1G/4)
                                                                          -13.75 YEARS
    6. TOTAL NET DISCOUNTED SAVINGS (2N5+3C)
                                                                          $ -67964.
    7. SAVINGS TO INVESTMENT RATIO
                                               (SIR) = (6 / 1G) = -.59
        (IF < 1 PROJECT DOES NOT QUALIFY)
**** Project does not qualify for ECIP funding; 4,5,6 for information only.
    8. ADJUSTED INTERNAL RATE OF RETURN (AIRR):
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N/A

Estimate: BLDG 3354 Date: 28-Nov-94 Description: ELECTRIC INFRARED HEATING SYSTEM COST ESTIMATE Project: LIMITED EEAP(HGR) Bid Date: LIMITED EEAP(HGR) Bid Date: Project: FORT BRAGG, N.C Job #: 94013.04 Location: Sq. footage: 19500 City indx:Raleigh, NC Description Manhours Matl Labor Equipment Sub 0913100280 FEEDER INSTALLATION, INCLUDING CONDUIT AND WIRE, 200 AMPERES 0.31 9.45 2000.00 L.F. Unit values 6.71 0.00 0.00 16.16 Totals 612.00 \$18,890 \$13,423 \$0 \$0 \$32,313 0914100200 SWITCHGEAR INST, INCL SWBD, PANELS & CIRC BKR, 400 AMPS 1.00 EACH 50.36 Unit values 2731.70 1099.80 0.00 0.00 3831.50 Totals 50.36 \$2,732 \$1,100 \$0 \$0 \$3,832 A09 ELECTRICAL 663 \$21,622 \$14,523 \$0 \$0 \$36,145

| Line # | Descriptio | n | | | | |
|-----------------------|----------------------------|--------------|-----------------|-----------------|-----------------------|-----------------|
| | Manhours | | Labor | Equipment | Sub | Total |
| | :======== | | | | | |
| 0205541750 | PAVEMENT R | EMOVAL, | BITUMINOUS | G, 4" TO 6" | THICK 30.00 | c v |
| Unit values Totals | 0.10 2.85 | 0.00 \$0 | 1.73 \$52 | 2.50 \$75 | 0.00 | 4.23 |
| 0205543200 | SITE REMOV 4"DIAMETE | | PIPE, WELD | ED CONNECT | ON, 1600.00 | ī. F |
| Unit values Totals | 0.15 240.00 | 0.00 | | 1.06 \$1,702 | 0.00 | 3.68 \$5,882 |
| 0207183600 | HVAC DEMO, | MECH EQP | T HEAVY IT | EM | 1 50 | man. |
| Unit values Totals | 14.55 21.82 | 0.00 \$0 | 314.87 \$472 | 0.00 \$0 | | 314.87 \$472 |
| 0208400600 | REMOVE PIP | E INSULA | TION UP TO | 4" DIAMETE | | T 17 |
| Unit values Totals | 0.07 99.40 | | 1.63 \$2,287 | 0.20 \$274 | | 1.83 \$2,561 |
| 0208401000 | REMOVE INS | ULATION : | FROM PIPE | FITTING, U | | |
| Unit values Totals | 0.20 32.00 | 0.00 | 4.60 \$735 | 0.56 \$90 | 160.00 0.00 \$0 | |
| 0222540060 | EXCAV TREN | CH, COMMO | ON EARTH, | 1'-4' DEEP, | 1/2 15.00 | CV |
| Unit values Totals | 0.08 1.20 | | 1.47 \$22 | 1.17 \$17 | 0.00 | 2.64 |
| 0222541900 | TAMPING TR | ENCH B'F | ILL, VIBRA | TING PLATE, | | G W |
| Unit values Totals | 0.09 1.34 | 0.00 \$0 | 1.44 \$22 | 0.55 \$8 | 15.00 0.00 \$0 | 1.99 \$30 |
| 0222543020 | | | .E.LOADER, | WHEEL MTD. | • | C V |
| Unit values Totals | BUCKET, MI 0.03 0.45 | 0.00 \$0 | 0.58 \$9 | 0.48 \$7 | 15.00 0.00 \$0 | 1.06 \$16 |
| 0251040380 | ASPHALTIC (COURSE, 2" | | PAVEMENT, | PAVING, WE | | C V |
| Unit values Totals | 0.02 0.45 | 2.96 \$89 | 0.27 \$8 | 0.25 \$7 | 30.00 0.00 \$0 | 3.48 \$104 |

| Line | # | Description | | | | | | | | | | | | |
|-------|---------------------|-------------|-------|------|------------|-----|-------|--------|-----------|-----|-----|------|------|--|
| | | Manh | nours | Matl | | Lab | or | Equip | ment | Sub | | Tot | al | |
| U02 | ======= SITEWORK | ====: | 400 | \$ | ==== 89 | \$7 | ,787 | \$2 | ,180 | | \$0 | \$10 | ,056 | |
| | 305010 values | | THICK | | FOR | | TRANS | SFORME | R 0.00 | | 00 | S.F. | 1.73 | |
| Tota | | | L.15 | \$ | 70 | | \$13 | | \$0 | • | \$0 | | \$83 | |
| U03 (| CONCRETE | | 2 | \$ | 70 | | \$13 | | \$0 | | \$0 | | \$83 | |

| ======================================= | ======== | | ======= | | ======= | | | | | |
|---|---------------|--------------------|------------------|--------------|----------------------|------------------|--|--|--|--|
| Line # | Description | | | | | | | | | |
| | Manhours | Matl | Labor | Equipment | Sub | Total | | | | |
| | | | | | | | | | | |
| 1554512150 | HTG INFRA | A RED ELEC | 27KW 9215 | 51BTU | 20.00 | Fa | | | | |
| Unit values Totals | 4.00 80.00 | 879.31 \$17,586 | 66.55 \$1,331 | 0.00 \$0 | 0.00 | | | | | |
| 1574205220 | ELECTRIC | THERMOSTAT | W/ COVE | R AND WIRING | 20.00 | m- | | | | |
| Unit values Totals | 1.00 | 74.93 \$1,499 | 20.81 \$416 | 0.00 \$0 | 20.00 0.00 \$0 | 95.74 \$1,915 | | | | |
| U15 MECHANICAL | 100 | \$19,085 | \$1,747 | \$0 | \$0 | \$20,832 | | | | |

| Line # | Description | | | | | | | |
|-----------------------|----------------|----------------------|-----------------|-----------------|-----------------------|-----------------------------|--|--|
| | Manhours | Matl | Labor E | quipment | Sub | Total | | |
| | | | | | ====== | ======= | | |
| 1611400600 | MINERAL I | NSULATED (| CABLE 600V | 1 #4 | 2 50 | | | |
| Unit values Totals | | 402.81 \$1,007 | 103.21 \$258 | 0.00 \$0 | 0.00 \$0 | | | |
| 1611400800 | MINERAL I | NSULATED (| CABLE 600V | 1 #2 | 5 00 | | | |
| Unit values Totals | 7.27 36.37 | 537.08 \$2,685 | 112.80 \$564 | 0.00 | 0.00 \$0 | C.L.F. 649.88 \$3,249 | | |
| 1621100220 | OUTLET BO | XES STEEL, | 4" SQ, 2- | 1/8" DEEP, | | _ | | |
| Unit values Totals | 0.40 8.00 | 2.36 \$47 | 6.20 \$124 | | 20.00 0.00 \$0 | 8.57 | | |
| 1621100250 | OUTLET BO | X STEEL 4' | COVERS BL | ANK | 20.00 | - | | |
| Unit values Totals | 0.13 2.50 | 0.54 \$11 | 1.94 \$39 | 0.00 \$0 | 20.00 0.00 \$0 | 2.48 \$50 | | |
| 1631200100 | HEATING S | YSTEM POWE | ER / CONTRO | L PANEL | 5 | _ | | |
| Unit values Totals | 2.96 20.74 | 320.72 \$2,245 | 45.97 \$322 | 0.00 \$0 | 7.00 0.00 \$0 | 366. 6 9 | | |
| 1641600300 | TRANSFORM | ER OIL PAD | 15KV 480V | 3P500KVA | | _ | | |
| Unit values Totals | 50.00 50.00 | 11760.20 \$11,760 | 775.50 \$776 | 146.08 \$146 | 1.00 0.00 \$0 | Ea. 12681.78 \$12,682 | | |
| 1671104800 | UNDERGROU | ND DUCT BA | NK PVC TYPI | E EB 4 - 2' | | | | |
| Unit values Totals | 0.13 33.25 | 1.48 \$370 | 2.07 \$517 | 0.00 \$0 | 250.00 0.00 \$0 | 3.55 \$887 | | |
| U16 ELECTRICAL | 168 | \$18,125 | \$2,600 | \$146 | \$0 | \$20,871 | | |

| Line # | Descripti | on | | | | |
|--|--|------------|----------|-----------|-----|---------------------------------------|
| | Manhours | Matl | Labor | Equipment | Sub | Total |
| | | | | | | |
| ESTIMATE TOTAL | 1333 | \$58,991 | \$26,670 | \$2,326 | \$0 | \$87,987 |
| SALES TAX MATL MARKUP LABOR MARKUP EQUIPT MARKUP | 0.00% 0.00% 0.00% 0.00% | \$0 \$0 | \$0 | \$0 | | |
| SUB MARKUP | 0.00% | | | ŞΟ | \$0 | |
| TOTAL BEFORE C CONTINGENCY BOND PROFIT | ONTINGENC 10.00% 0.00% 10.00% | \$58,991 | \$26,670 | \$2,326 | \$0 | \$87,987 \$8,799 \$0 \$8,799 |
| JOB TOTAL | | | | | | \$105,584 |

JOB TOTAL

Estimate: BLDG 3354 Date: 28-Nov-94
Description: ELECTRIC INFRARED HEATING SYSTEM COST ESTIMATE
Project: LIMITED EEAP(HGR) Bid Date:
Location: FORT BRAGG, N. C Job #: 94013.04

| Sq. footage: | 19500 | | City indx | :Raleigh, NC | <u> </u> | |
|--|---|--|---|---------------------------------------|------------------------------|--|
| _========= | S | UMMARY | | | | |
| | Manhours | Matl | Labor | Equipment | Sub | Total |
| ======================================= | | ======= | | | | |
| A09 ELECTRICAL U02 SITEWORK U03 CONCRETE U15 MECHANICAL U16 ELECTRICAL | 663 400 2 100 168 | \$21,622 \$89 \$70 \$19,085 \$18,125 | \$14,523 \$7,787 \$13 \$1,747 \$2,600 | \$0 \$2,180 \$0 \$0 \$146 | \$90 \$90 \$\$ \$90 | \$36,145 \$10,056 \$83 \$20,832 \$20,871 |
| TOTAL | 1333 | \$58,991 | \$26,670 | \$2,326 | \$0 | \$87,987 |
| SALES TAX MATL MARKUP LABOR MARKUP EQUIPT MARKUP SUB MARKUP | 0.00% 0.00% 0.00% 0.00% 0.00% | \$0 \$0 | \$0 | \$0 | \$0 | |
| TOTAL BEFORE CO CONTINGENCY BOND PROFIT | ONTINGENC 10.00% 0.00% 10.00% | \$58,991 | \$26,670 | \$2,326 | \$0 | \$87,987 \$8,799 \$0 \$8,799 |
| | | | | | | |

\$105,584

ENERGY CONSERVATION INVESTMENT PROGRAM (ECIP)

LLATION & LOCATION FORT BRACE

LCCID FY95 (92) LCCID FY95 (92) INSTALLATION & LOCATION: FORT BRAGG REGION NOS. 4 CENSUS: 3 PROJECT NO. & TITLE: 94013.04 LES: ECO3 - ELECTRIC INFRARED HEAT FISCAL YEAR 95 DISCRETE PORTION NAME: ECO ANALYSIS DATE: 12-05-94 ECONOMIC LIFE 20 YEARS PREPARED BY: G.B. LOFLIN 1. INVESTMENT A. CONSTRUCTION COST \$ 91571. B. SIOH 4579. C. DESIGN COST \$ 4579. D. TOTAL COST (1A+1B+1C) \$ 100729. E. SALVAGE VALUE OF EXISTING EQUIPMENT \$ F. PUBLIC UTILITY COMPANY REBATE \$ 0. G. TOTAL INVESTMENT (1D - 1E - 1F) 100729. 2. ENERGY SAVINGS (+) / COST (-) DATE OF NISTIR 85-3273-X USED FOR DISCOUNT FACTORS OCT 1994 UNIT COST SAVINGS ANNUAL \$ DISCOUNT DISCOUNTED \$/ MWH(1) MWH/YR(2) SAVINGS(3) FACTOR(4) SAVINGS(5) -119. \$ -4172. 15.08 883. \$ 16937. 18.57 0. \$ 0. 21.02 0. \$ 0. 18.58 0. \$ 0. 16.83 0. \$ 0. 17.38 \$ -19494. 14.88 764. \$ -6729. -4172. A. ELECT \$ 34.95 B. DIST \$ 19.18 C. RESID \$.00 D. NAT G \$ 13.44 -62913.314522. 0. 0. E. COAL \$.00 F. PPG \$.00 0. M. DEMAND SAVINGS -290071. N. TOTAL -38462. 3. NON ENERGY SAVINGS (+) / COST (-) A. ANNUAL RECURRING (+/-) \$ 300. (1) DISCOUNT FACTOR (TABLE A) 14.88 (2) DISCOUNTED SAVING/COST (3A X 3A1) 4464. B. NON RECURRING SAVINGS(+) / COSTS(-) SAVINGS(+) YR DISCNT COST(-) OC FACTR DISCOUNTED COST(-) OC FACE (1) (2) (3) ITEM SAVINGS(+)/ COST(-)(4)d. TOTAL C. TOTAL NON ENERGY DISCOUNTED SAVINGS(+)/COST(-)(3A2+3Bd4)\$ 4464. 4. FIRST YEAR DOLLAR SAVINGS 2N3+3A+(3Bd1/(YRS ECONOMIC LIFE))\$ 5. SIMPLE PAYBACK PERIOD (1G/4) -15.67 YEARS 6. TOTAL NET DISCOUNTED SAVINGS (2N5+3C) \$ -33998. 7. SAVINGS TO INVESTMENT RATIO (SIR) = (6 / 1G) =(IF < 1 PROJECT DOES NOT QUALIFY) **** Project does not qualify for ECIP funding; 4,5,6 for information only. 8. ADJUSTED INTERNAL RATE OF RETURN (AIRR):

N/A

_______ Estimate: BLDG 3637 Date: 28-Nov-94 Description: ELECTRIC INFRARED HEATING SYSTEM COST ESTIMATE LIMITED EEAP(HGR) Bid Date: Project: FORT BRAGG, N.C Job #: 94013.04 Location: Sq. footage: 12000 City indx:Raleigh, NC Description Line # Manhours Matl Labor Equipment Sub Total FEEDER INSTALLATION, INCLUDING CONDUIT AND 0913100280 1800.00 L.F. WIRE, 200 AMPERES 6.71 Unit values 0.31 9.45 0.00 0.00 16.16 Totals 550.80 \$17,001 \$12,081 \$0 \$0 \$29,082 0914100200 SWITCHGEAR INST, INCL SWBD, PANELS & CIRC BKR, 400 AMPS 50.36 273 1.00 EACH Unit values 2731.70 1099.80 0.00 0.00 3831.50 Totals 50.36 \$2,732 \$1,100 \$0 \$0 \$3,832 A09 ELECTRICAL 602 \$19,733 \$13,181 \$0 \$0 \$32,914

| | | ====== | | | | |
|---|--------------------------------|--------------|-----------------|-----------------|----------------|-----------------|
| Line # | Description | | | | | |
| | Manhours | Matl | Labor | Equipment | Sub | Total |
| *====================================== | | | | | | |
| 0205541750 | | | | | 20 00 | S.Y. |
| Unit values Totals | 0.10 1.90 | 0.00 \$0 | 1.73 \$35 | 2.50 \$50 | 0.00 | 4.23 \$85 |
| 0205543200 | CERTAIN A TAIL N | | | | 1000 00 | L.F. |
| Unit values Totals | 0.15 150.00 | 0.00 \$0 | 2.61 \$2,613 | 1.06 \$1,064 | 0.00 \$0 | 3.68 \$3,677 |
| 0207183600 | HVAC DEMO, M | ECH EQPI | HEAVY IT | 'EM | 1.00 | Ton |
| Unit values Totals | HVAC DEMO, M 14.55 14.55 | 0.00 \$0 | 314.87 \$315 | 0.00 \$0 | 0.00 | 314.87 \$315 |
| 0208400600 | REMOVE PIPE | TNSIILAT | דר פנז מסדי |) 4" DTAMETE | R PIPE | |
| Unit values Totals | 0.07 71.00 | 0.00 \$0 | 1.63 \$1,634 | 0.20 \$196 | 0.00 \$0 | 1.83 \$1,830 |
| 0208401000 | REMOVE INSU DIAMETER PI | LATION F | FROM PIPE | FITTING, UP | TO 4" | Ea. |
| Unit values Totals | 0.20 25.00 | 0.00 \$0 | 4.60 \$574 | 0.56 \$70 | 0.00 \$0 | 5.16 \$644 |
| 0222540060 | EXCAV TRENC CY TRAC/LDR | | | | 15 00 | C.Y. |
| Unit values Totals | 0.08 | 0.00 \$0 | 1.47 \$22 | 1.17 \$17 | 0.00 \$0 | 2.64 |
| 0222541900 | TAMPING TRE | NCH B'FI | LL, VIBRA | TING PLATE, | ADD 15.00 | С. Ү. |
| Unit values Totals | 0.09 1.34 | 0.00 \$0 | 1.44 \$22 | 0.55 \$8 | 0.00 | 1.99 |
| 0222543020 | BACKFILL TR BUCKET, MIN | | E.LOADER, | WHEEL MTD. | , 1CY 15.00 | C.Y. |
| Unit values Totals | 0.03 | 0.00 | 0.58 \$9 | 0.48 \$7 | 0.00 | 1.06 \$16 |
| 0251040380 | ASPHALTIC C COURSE, 2" | | PAVEMENT, | PAVING, WE | ARING 20.00 | S.Y. |
| Unit values Totals | 0.02 0.30 | 2.96 \$59 | | | 0.00 | 3.48 |

\$0 \$83

U03 CONCRETE

| Line # | Description | on | | | | |
|-----------------------|--------------|--------------|--------------|-------------|-------|--------------|
| | Manhours | Matl | Labor | Equipment | Sub | Total |
| ========= | ======== | | | | | |
| U02 SITEWORK | 266 | \$59 | \$5,229 | \$1,417 | \$0 | \$6,705 |
| 0331305010 | 6" THICK | SLAB FOR | NEW TRANS | SFORMER | 48.00 | S.F. |
| Unit values Totals | 0.02 1.15 | 1.45 \$70 | 0.28 \$13 | 0.00 \$0 | 0.00 | 1.73 \$83 |

2 \$70 \$13 \$0

| ======================================= | ======= | | | | ======= | |
|---|------------|--------------------|----------------|---|---------------------|---------------------------|
| Line # | Descripti | on | | | | |
| | Manhours | Matl | Labor | Equipment | Sub | Total |
| | ======= | ======= | ====== | ======================================= | ======= | |
| 1554512050 | HTG INFRA | RED ELEC | 6KW 20478 | BBTU | 5.00 | Fa |
| Unit values Totals | | | 44.47 \$222 | 0.00 \$0 | 0.00 | 379.13 \$1,895 |
| 1554512100 | HTG INFRA | RED ELEC | 13.5KW 46 | 6075.5BTU | -16- | _ |
| Unit values Totals | | 455.20 \$2,276 | | 0.00 \$0 | 5.00 0.00 \$0 | |
| 1554512150 | HTG INFRA | RED ELEC | 27KW 9215 | 51BTU | | |
| Unit values Totals | | 879.31 \$10,552 | 66.55 \$799 | 0.00 \$0 | | Ea. 945.86 \$11,351 |
| 1574205220 | ELECTRIC ' | THERMOSTAT | r w/ cover | R AND WIRING | | |
| Unit values Totals | 1.00 | | 20.81 \$458 | | | Ea. 95.74 \$2,106 |
| U15 MECHANICAL | 100 | \$16,149 | \$1,745 | \$0 | \$0 | \$17,894 |

| Line # | Descript | ion | | | | |
|-----------------------|----------------|----------------------|-----------------|-------------|-----------------------|----------------------|
| | Manhours | | Labor E | | | Total |
| | | | | | | ====== |
| 1611400600 | MINERAL | INSULATED | CABLE 600V | 1 #4 | 2 00 | C.L.F. |
| Unit values Totals | 6.67 13.33 | 402.81 \$806 | 103.21 \$206 | 0.00 | 0.00 | 506.02 \$1,012 |
| 1611400800 | MINERAL | INSULATED | CABLE 600V | 1 #2 | 4 00 | C.L.F. |
| Unit values Totals | | 537.08 \$2,148 | 112.80 \$451 | 0.00 \$0 | 0.00 | 649.88 \$2,599 |
| 1621100220 | OUTLET B | OXES STEEL | , 4" SQ, 2- | 1/8" DEEP, | | n- |
| Unit values Totals | 0.40 | 2.36 \$52 | 6.20 \$136 | 0.00 \$0 | 22.00 0.00 \$0 | 8.57 |
| 1621100250 | OUTLET B | OX STEEL 4 | " COVERS BL | ANK | 22.00 | П- |
| Unit values Totals | 0.13 2.75 | | 1.94 \$43 | | 22.00 0.00 \$0 | 2.48 |
| 1631200100 | HEATING : | SYSTEM POW | ER / CONTRO | L PANEL | 4 00 | 7- |
| Unit values Totals | 2.96 11.85 | 320.72 \$1,283 | 45.97 \$184 | 0.00 \$0 | 4.00 0.00 \$0 | |
| 1641600300 | TRANSFORI | MER OIL PAI | 15KV 480V | 3P500KVA | | _ |
| Unit values Totals | 50.00 50.00 | 11760.20 \$11,760 | 775.50 \$776 | | | 12681.78 \$12,682 |
| 1671104800 | UNDERGRO | UND DUCT BA | NK PVC TYPI | E EB 4 - 2 | | |
| Unit values Totals | 0.13 26.60 | 1.48 \$296 | 2.07 \$414 | 0.00 \$0 | 200.00 0.00 \$0 | 3.55 \$710 |
| U16 ELECTRICAL | 143 | \$16,357 | \$2,210 | \$146 | \$0 | \$18,713 |

| | | ======= | | ========= | ======== | ======= | | | |
|--|--|------------|----------|-----------|----------|---------------------------------------|--|--|--|
| Line # | Descripti | escription | | | | | | | |
| | Manhours | Matl | Labor | Equipment | Sub | Total | | | |
| ======================================= | ======= | ======== | | | | | | | |
| ESTIMATE TOTAL | 1113 | \$52,368 | \$22,378 | \$1,563 | \$0 | \$76,309 | | | |
| SALES TAX MATL MARKUP LABOR MARKUP | 0.00% 0.00% 0.00% | \$0 \$0 | \$0 | | | | | | |
| EQUIPT MARKUP SUB MARKUP | 0.00% | | Ψ° | \$0 | \$0 | | | | |
| TOTAL BEFORE CO CONTINGENCY BOND PROFIT | ONTINGENC 10.00% 0.00% 10.00% | \$52,368 | \$22,378 | \$1,563 | \$0 | \$76,309 \$7,631 \$0 \$7,631 | | | |
| JOB TOTAL | | | | | | \$91,571 | | | |

Estimate: BLDG 3637 Date: 28-Nov-94
Description: ELECTRIC INFRARED HEATING SYSTEM COST ESTIMATE

Project: LIMITED EEAP(HGR) Bid Date:

FORT BRAGG, N.C Job #: 94013.04 12000 City indx:Raleigh, NC Location:

| | Sq. footage: | 12000 | | City inax | :Raleign, NC | ; | |
|---|--|---|--|---|---------------------------------------|---------------------------------|---|
| • | ======================================= | S | UMMARY | | | | |
| | | Manhours | Matl | Labor | Equipment | Sub | Total |
| | ========= | | | | | .=====: | |
| | A09 ELECTRICAL U02 SITEWORK U03 CONCRETE U15 MECHANICAL U16 ELECTRICAL | 266 2 100 | \$19,733 \$59 \$70 \$16,149 \$16,357 | \$13,181 \$5,229 \$13 \$1,745 \$2,210 | \$0 \$1,417 \$0 \$0 \$146 | \$0 \$0 \$0 \$0 \$0 | \$32,914 \$6,705 \$83 \$17,894 \$18,713 |
| | TOTAL | 1113 | \$52,368 | \$22,378 | \$1,563 | \$0 | \$76,309 |
| | SALES TAX MATL MARKUP LABOR MARKUP EQUIPT MARKUP SUB MARKUP | 0.00% 0.00% 0.00% 0.00% 0.00% | \$0 \$0 | \$0 | \$0 | \$0 | |
|) | TOTAL BEFORE CONTINGENCY BOND PROFIT | ONTINGENC 10.00% 0.00% 10.00% | \$52,368 | \$22,378 | \$1,563 | \$0 | \$76,309 \$7,631 \$0 \$7,631 |
| | JOB TOTAL | | | | | | \$91,571 |

LIFE CYCLE COST ANALYSIS SUMMARY STUDY: 3642EC03 ENERGY CONSERVATION INVESTMENT PROGRAM (ECIP) LCCID FY95 (92) INSTALLATION & LOCATION: FORT BRAGG REGION NOS. 4 CENSUS: 3 PROJECT NO. & TITLE: 94013.04 LES: ECO3 - ELECTRIC INFRARED HEAT FISCAL YEAR 95 DISCRETE PORTION NAME: ECO ANALYSIS DATE: 12-05-94 ECONOMIC LIFE 20 YEARS PREPARED BY: G.B. LOFLIN 1. INVESTMENT A. CONSTRUCTION COST \$ 144029. B. SIOH 7201. C. DESIGN COST 7201. D. TOTAL COST (1A+1B+1C) \$ 158431. E. SALVAGE VALUE OF EXISTING EQUIPMENT \$ F. PUBLIC UTILITY COMPANY REBATE
G. TOTAL INVESTMENT (1D - 1E - 1F) 0. 158431. 2. ENERGY SAVINGS (+) / COST (-) DATE OF NISTIR 85-3273-X USED FOR DISCOUNT FACTORS OCT 1994 UNIT COST SAVINGS ANNUAL \$ DISCOUNT DISCOUNTED FUEL S/ MWH(1) MWH/YR(2) SAVINGS(3) FACTOR(4) SAVINGS(5) -7336. -210. 1021. 0. 0. 0. A. ELECT \$ 34.95 B. DIST \$ 19.18 15.08 -110632. 19578. 18.57 363563. C. RESID \$.00 D. NAT G \$ 13.44 0. 21.02 0. 0. 18.58 0. E. COAL \$.00 F. PPG \$.00 16.83 0. 0. \$ 0. \$ -29484. 811. \$ -17242. 0. -29484. 17.38 0. M. DEMAND SAVINGS 14.88 -438722. N. TOTAL -185791. 3. NON ENERGY SAVINGS (+) / COST(-) \$ 14.88 A. ANNUAL RECURRING (+/-)1043. (1) DISCOUNT FACTOR (TABLE A) (2) DISCOUNTED SAVING/COST (3A X 3A1) \$ 15521. B. NON RECURRING SAVINGS(+) / COSTS(-) SAVINGS(+) YR DISCNT COST(-) OC FACTR DISCOUNTED COST(-) ITEM SAVINGS(+)/ (1) (2) (3) COST(-)(4) d. TOTAL 0. C. TOTAL NON ENERGY DISCOUNTED SAVINGS(+)/COST(-)(3A2+3Bd4)\$ 15521. 4. FIRST YEAR DOLLAR SAVINGS 2N3+3A+(3Bd1/(YRS ECONOMIC LIFE))\$ -16199. 5. SIMPLE PAYBACK PERIOD (1G/4) -9.78 YEARS 6. TOTAL NET DISCOUNTED SAVINGS (2N5+3C) \$ -170270. 7. SAVINGS TO INVESTMENT RATIO (SIR) = (6 / 1G) = -1.07(IF < 1 PROJECT DOES NOT QUALIFY) *** Project does not qualify for ECIP funding; 4,5,6 for information only. 8. ADJUSTED INTERNAL RATE OF RETURN (AIRR):

N/A

Date: 28-Nov-94 Estimate: BLDG 3642 Description: ELECTRIC INFRARED HEATING SYSTEM COST ESTIMATE Project: LIMITED EEAP(HGR) Bid Date: Location: FORT BRAGG, N.C Job #: FORT BRAGG, N.C Job #: 94013.04 City indx:Raleigh, NC Sq. footage: 19500 -Line # Description ______ Manhours Matl Labor Equipment Sub Total _______ 0913100280 FEEDER INSTALLATION, INCLUDING CONDUIT AND WIRE, 200 AMPERES 3000.00 L.F. 6.71 Unit values 0.31 9.45 0.00 0.00 16.16 918.00 \$28,336 \$20,135 Totals \$0 \$0 \$48,471 0914100240 SWITCHGEAR INST, INCL SWBD, PANELS & CIRC BKR, 600 AMPERES 68.07 6574.60 1494.60 68.07 \$6,575 \$1,495 1.00 EACH Unit values 0.00 0.00 8069.20 Totals \$0 \$0 \$8,070 A09 ELECTRICAL 987 \$34,911 \$21,630 \$0 \$0 \$56,541

| Line # | Description | | | | | | |
|-----------------------|--------------------------|--------------|-----------------|-----------------|----------------|-----------------|--|
| | Manhours | | | Equipment | | Total | |
| | | | | | | ======= | |
| 0205541750 | | | | | 30.00 | S.Y. | |
| Unit values Totals | 2.85 | \$0 | \$52 | \$75 | \$0 | 4.23 \$127 | |
| 0205543200 | AUDTAMETI | מיב | | | 1600 00 | L.F. | |
| Unit values Totals | 0.15 240.00 | 0.00 \$0 | 2.61 \$4,180 | 1.06 \$1,702 | 0.00 \$0 | 3.68 \$5,882 | |
| 0207183600 | HVAC DEMO | MECH EQP | r HEAVY I | rem | 7 50 | Ton | |
| Unit values Totals | 14.55 21.82 | 0.00 \$0 | 314.87 \$472 | 0.00 \$0 | 0.00 | 314.87 \$472 | |
| 0208400600 | REMOVE PI | PE INSULAT | TION UP TO | 0 4" DIAMETE | ER PIPE | T. F | |
| Unit values Totals | 0.07 99.40 | 0.00 \$0 | 1.63 \$2,287 | 0.20 \$274 | 0.00 | 1.83 \$2,561 | |
| 0208401000 | DIAMETER I | OT D F | | · | 160 00 | T- | |
| Unit values Totals | 0.20 32.00 | 0.00 \$0 | 4.60 \$735 | 0.56 \$90 | 0.00 | 5.16 \$825 | |
| 0222540060 | EXCAV TREN | NCH, COMMO | ON EARTH, | 1'-4' DEEP, | | C.Y. | |
| Unit values Totals | 0.08 | 0.00 | 1.47 \$22 | 1.17 \$17 | 0.00 | 2.64 | |
| 0222541900 | TAMPING TR | RENCH B'FI | LL, VIBRA | ATING PLATE, | ADD 15.00 | C V | |
| Unit values Totals | 0.09 1.34 | 0.00 \$0 | 1.44 \$22 | 0.55 \$8 | 0.00 | 1.99 | |
| 0222543020 | BACKFILL T BUCKET, MI | | E.LOADER, | WHEEL MTD. | , 1CY 15.00 | C V | |
| Unit values Totals | 0.03 | 0.00 | 0.58 \$9 | 0.48 \$7 | 0.00 | 1.06 | |
| 0251040380 | ASPHALTIC COURSE, 2" | CONCRETE | PAVEMENT, | PAVING, WE | ARING 30.00 | S Y | |
| Unit values Totals | 0.02 0.45 | 2.96 \$89 | 0.27 \$8 | 0.25 \$7 | 0.00 | 3.48 \$104 | |

| Line # | Description | | | | | | |
|-----------------------|--------------|--------------|-----------|-------------|-------|--------------|--|
| | Manhours | Matl | Labor | Equipment | Sub | Total | |
| =========== | ======== | | | | | | |
| U02 SITEWORK | 400 | \$89 | \$7,787 | \$2,180 | \$0 | \$10,056 | |
| 0331305010 | 6" THICK | SLAB FOR | NEW TRANS | SFORMER | 48.00 | S.F. | |
| Unit values Totals | 0.02 1.15 | 1.45 \$70 | 0.28 | 0.00 \$0 | 0.00 | 1.73 \$83 | |
| U03 CONCRETE | 2 | \$70 | \$13 | \$0 | \$0 | \$83 | |

| Line # | Descripti | on | | | | |
|-----------------------|---------------|--------------------|----------------|-------------|-------|--------------------|
| | Manhours | Matl | Labor | Equipment | Sub | Total |
| | ======= | | | | | |
| 1554512050 | HTG INFRA | RED ELEC | 6KW 20478 | BBTU | 5.00 | E a |
| Unit values Totals | 2.67 13.34 | 334.67 \$1,673 | 44.47 \$222 | 0.00 \$0 | 0.00 | |
| 1554512100 | HTG INFRA | RED ELEC | 13.5KW 46 | 075.5BTU | 5.00 | Ro |
| Unit values Totals | | 455.20 \$2,276 | 53.24 \$266 | 0.00 \$0 | 0.00 | |
| 1554512150 | HTG INFRA | RED ELEC | 27KW 9215 | 51BTU | 20.00 | T - |
| Unit values Totals | | 879.31 \$17,586 | | 0.00 \$0 | | 945.86 \$18,917 |
| 1574205220 | ELECTRIC | THERMOSTAT | r w/ cover | AND WIRING | 20.00 | _ |
| Unit values Totals | | 74.93 \$2,248 | 20.81 \$624 | 0.00 \$0 | | 95.74 \$2,872 |
| U15 MECHANICAL | 140 | \$23,783 | \$2,443 | \$0 | \$0 | \$26,226 |

| Line # | Description | | | | | | | |
|---|---|----------------------|--------------------|-----------------|-----------------------|-------------------|--|--|
| ======================================= | Manhours | | | Equipment | | Total | | |
| | | | | | | ======= | | |
| 1611400600 | MINERAL | INSULATED (| CABLE 600 | V 1 #4 | 2 50 | C.L.F. | | |
| Unit values Totals | 6.67 16.67 | 402.81 \$1,007 | 103.21 \$258 | | 0.00 | 506.02 \$1,265 | | |
| 1611400800 | MINERAL | INSULATED (| CABLE 600V | J 1 #2 | E 00 | C.L.F. | | |
| Unit values Totals | 7.27 36.37 | 537.08 \$2,685 | 112.80 \$564 | | 0.00 | | | |
| 1621100220 | OUTLET B | OXES STEEL, | 4" SQ, 2- | -1/8" DEEP, | 1" 30.00 | Fo | | |
| Unit values Totals | 0.40 | 2.36 \$71 | | 0.00 \$0 | 0.00 | 8.57 \$257 | | |
| 1621100250 | OUTLET B | OX STEEL 4" | COVERS BI | LANK | 30.00 | Π | | |
| Unit values Totals | 0.13 3.75 | 0.54 \$16 | 1.94 \$58 | 0.00 \$0 | 0.00 | 2.48 | | |
| 1631200100 | HEATING SYSTEM POWER / CONTROL PANEL 7.00 Ea. | | | | | | | |
| Unit values Totals | 2.96 20.74 | | 45.97 \$322 | 0.00 \$0 | 0.00 \$0 | 366.69 \$2,567 | | |
| 1641600500 | TRANSFOR | MER OIL PAD | 15KV 480V | 7 3P1000KVA | 1 00 | 77 | | |
| Unit values Totals | 76.92 76.92 | 17408.80 \$17,409 | 1184.40 \$1,184 | 225.60 \$226 | 1.00 0.00 \$0 | | | |
| 1671104800 | UNDERGRO | UND DUCT BA | NK PVC TYF | PE EB 4 - 2" | | | | |
| Unit values Totals | 0.13 33.25 | 1.48 \$370 | 2.07 \$517 | | 250.00 0.00 \$0 | 3.55 \$887 | | |
| U16 ELECTRICAL | 200 | \$23,803 | \$3,089 | \$226 | \$0 | \$27,118 | | |

| Line # | Description | | | | | | | | |
|--|--|------------|----------|-----------|---------|--|--|--|--|
| | Manhours | Matl | Labor | Equipment | Sub | Total | | | |
| | | ======== | | ======== | ======= | ======== | | | |
| ESTIMATE TOTAL | 1729 | \$82,656 | \$34,962 | \$2,406 | \$0 | \$120,024 | | | |
| SALES TAX MATL MARKUP LABOR MARKUP | 0.00% 0.00% 0.00% | \$0 \$0 | \$0 | | | | | | |
| EQUIPT MARKUP SUB MARKUP | 0.00% | | Şo | \$0 | \$0 | | | | |
| TOTAL BEFORE CONTINGENCY BOND PROFIT | ONTINGENC 10.00% 0.00% 10.00% | \$82,656 | \$34,962 | \$2,406 | \$0 | \$120,024 \$12,002 \$0 \$12,002 | | | |
| JOB TOTAL | | | | | | \$144,029 | | | |

JOB TOTAL

Estimate: BLDG 3642 Date: 28-Nov-94

Description: ELECTRIC INFRARED HEATING SYSTEM COST ESTIMATE

Project: LIMITED EEAP(HGR) Bid Date:

Location: FORT BRAGG, N.C Job #: 94013.04 Sq. footage: 19500 City indx:Raleigh, NC

SUMMARY Labor Equipment Sub Manhours Matl A09 ELECTRICAL 987 \$34,911 \$21,630 \$0 \$0 \$56,541 \$89 U02 SITEWORK 400 \$7,787 \$2,180 \$0 \$10,056 \$13 \$2,443 \$70 U03 CONCRETE 2 \$0 \$0 \$83 \$26,226 U15 MECHANICAL \$23,783 140 \$0 \$0 U16 ELECTRICAL \$3,089 200 \$23,803 \$27,118 \$226 \$0 TOTAL 1729 \$82,656 \$34,962 \$2,406 \$0 \$120,024 SALES TAX 0.00% \$0 0.00% MATL MARKUP \$0 LABOR MARKUP 0.00% \$0 EQUIPT MARKUP 0.00% \$0 SUB MARKUP 0.00% \$0 TOTAL BEFORE CONTINGENC \$82,656 \$34,962 \$2,406 \$0 \$120,024 CONTINGENCY 10.00% \$12,002 0.00% BOND \$0 PROFIT 10.00% \$12,002

\$144,029

```
ENERGY CONSERVATION INVESTMENT PROGRAM (ECIP) LCCID INVESTMENT
                                                                                                                         LCCID FY95 (92)
        INSTALLATION & LOCATION: FORT BRAGG
        PROJECT NO. & TITLE: 94013.04 LES: ECO3 - ELECTRIC INFRARED HEAT
        FISCAL YEAR 95 DISCRETE PORTION NAME: ECO
        ANALYSIS DATE: 12-05-94 ECONOMIC LIFE 20 YEARS PREPARED BY: G.B. LOFLIN
        1. INVESTMENT
        A. CONSTRUCTION COST
                                                                          214760.
                                                                 $
                                                                          10738.
        B. SIOH
        C. DESIGN COST
                                                                 $
                                                                            10738.
        D. TOTAL COST (1A+1B+1C) $ 236236.
        E. SALVAGE VALUE OF EXISTING EQUIPMENT $
                                                                                                              0.
        F. PUBLIC UTILITY COMPANY REBATE
        G. TOTAL INVESTMENT (1D - 1E - 1F)
                                                                                                                                   236236.
        2. ENERGY SAVINGS (+) / COST (-)
        DATE OF NISTIR 85-3273-X USED FOR DISCOUNT FACTORS OCT 1994
                                    UNIT COST SAVINGS ANNUAL $ DISCOUNT
                                                                                                                                                DISCOUNTED
                FUEL.
                                    $/ MWH(1)
                                                             MWH/YR(2) SAVINGS(3) FACTOR(4)
                                                                                                                                                SAVINGS(5)
                                                               -288.
1941
                A. ELECT $ 34.95
B. DIST $ 19.18
C. RESID $ .00
D. NAT G $ 13.44
                                                                                                -10059.
                                                                                                                               15.08
                                                                                                                                                       -151689.
                                                                                                37359.
                                                                                                                               18.57
                                                                                                                                                         693764.
                                                                                        $ 0.
$ 0.
$ 0.
$ 0.
$ -47522.
$ -20222.
                                                                 0.
                                                                                                                               21.02
                                                                                                                                                                    0.
                                                                       0.
0.
0.
                                                                                                                             18.58
                                                                                                                                                                    0.
                E. COAL $ .00
                                                                                                                              16.83
                                                                                                                                                                    0.
                                             .00
                F. PPG $
                                                                                                                                                                    0.
                                                                                                                              17.38
                M. DEMAND SAVINGS
                                                                                                                             14.88
                                                                                                                                                       -707127.
                                                                   1660.
                N. TOTAL
                                                                                                                                                       -165053.
        3. NON ENERGY SAVINGS(+) / COST(-)
              A. ANNUAL RECURRING (+/-)
                                                                                                                                                $
                                                                                                                                                             300.
                        (1) DISCOUNT FACTOR (TABLE A)
                                                                                                                            14.88
                        (2) DISCOUNTED SAVING/COST (3A X 3A1)
                                                                                                                                                          4464.
              B. NON RECURRING SAVINGS(+) / COSTS(-)
                                                                     SAVINGS(+) YR
                                                                                                             DISCNT
                                                                                                                                     DISCOUNTED
                                                                         COST(-)
                                                                                                            FACTR
                                         ITEM
                                                                                                 OC
                                                                                                                                     SAVINGS(+)/
                                                                                 (1)
                                                                                                (2)
                                                                                                              (3)
                                                                                                                                     COST(-)(4)
                d. TOTAL
                                                                                    0.
                                                                                                                                                    0.
              C. TOTAL NON ENERGY DISCOUNTED SAVINGS(+)/COST(-)(3A2+3Bd4)$ 4464.
        4. FIRST YEAR DOLLAR SAVINGS 2N3+3A+(3Bd1/(YRS ECONOMIC LIFE))$ -19922.
        5. SIMPLE PAYBACK PERIOD (1G/4)
                                                                                                                                                  -11.86 YEARS
        6. TOTAL NET DISCOUNTED SAVINGS (2N5+3C)
                                                                                                                                                $ -160589.
        7. SAVINGS TO INVESTMENT RATIO
                                                                                              (SIR) = (6 / 1G) =
                                                                                                                                    -.68
                (IF < 1 PROJECT DOES NOT QUALIFY)
**** Project does not qualify for ECIP funding; 4,5,6 for information only.
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LIFE CYCLE COST ANALYSIS SUMMARY

8. ADJUSTED INTERNAL RATE OF RETURN (AIRR):

PAGE 9-51

N/A

STUDY: 3807EC03

_______ Estimate: BLDG 3807 Date: 28-Nov-94 Description: ELECTRIC INFRARED HEATING SYSTEM COST ESTIMATE Project: LIMITED EEAP(HGR) Bid Date: 94013.04 FORT BRAGG, N.C Job #: Location: City indx:Raleigh, NC Sq. footage: 31586 Line # Description Manhours Matl Labor Equipment Sub Total ______ FEEDER INSTALLATION, INCLUDING CONDUIT AND 0913100280 WIRE, 200 AMPERES 4000.00 L.F. 6.71 Unit values 0.31 9.45 0.00 0.00 16.16 Totals 1224.00 \$37,781 \$26,846 \$0 \$0 \$64,627 0914100360 SWITCHGEAR INST, INCL SWBD, PANELS & CIRC BKR, 1600 AMPERES 208.17 13519.60 1.00 EACH 4568.40 Unit values 0.00 0.00 18088.00 208.17 \$13,520 Totals \$4,568 \$0 \$0 \$18,088 A09 ELECTRICAL 1433 \$51,301 \$31,414 \$0 \$0 \$82,715

| ============ | ======= | | ======== | ======== | ====== | ======== |
|-------------------------------------|--|---------------|------------------|------------------------------|----------------------|-----------------|
| Line # | Description | on | | | | |
| | Manhours | | | Equipment | | Total |
| | | | :======= | | ====== | |
| 0205541750 | PAVEMENT 1 | REMOVAL, | BITUMINOU | S, 4" TO 6" | THICK 40.00 | c v |
| Unit values Totals | 0.10 3.80 | 0.00 \$0 | 1.73 \$69 | 2.50 \$100 | 0.00 | 4.23 |
| 0205543200 | SITE REMOV | מי | | | 4000 00 | ים ד |
| Unit values Totals | 0.15 600.00 | | 2.61 \$10,450 | 1.06 \$4,255 | 0.00 | 3.68 |
| 0207183600 | HVAC DEMO | MECH EQF | T HEAVY I | | | _ |
| Unit values Totals | 14.55 29.09 | 0.00 \$0 | 314.87 \$630 | 0.00 | | 314.87 \$630 |
| 0208400600 | REMOVE PI | PE INSULA | ATION UP TO | 0 4" DIAMETE | | |
| Unit values Totals | 0.07 284.00 | 0.00 \$0 | 1.63 \$6,536 | 0.20 \$783 | | 1.83 \$7,319 |
| 0208401000 Unit values Totals | REMOVE INS DIAMETER I 0.20 100.00 | 0.00 | 4.60 | FITTING, UP 0.56 \$281 | 500.00 | |
| 0222540060 | EXCAV TREN | ICH, COMM | ON EARTH, | 1'-4' DEEP, | | G V |
| Unit values Totals | 0.08 2.00 | | | 1.17 \$29 | | 2.64 \$66 |
| 0222541900 | TAMPING TR | RENCH B'F | 'ILL, VIBRA | ATING PLATE, | | a |
| Unit values Totals | 0.09 2.23 | 0.00 \$0 | 1.44 \$36 | 0.55 \$14 | 25.00 0.00 \$0 | 1.99 \$50 |
| 0222543020 | BACKFILL T BUCKET, MI | | '.E.LOADER, | WHEEL MTD. | | C V |
| Unit values Totals | 0.03 0.75 | 0.00 \$0 | 0.58 \$14 | | 25.00 0.00 \$0 | 1.06 \$26 |
| 0251040380 | | | PAVEMENT, | PAVING, WE | | 0. 37 |
| Unit values Totals | COURSE, 2" 0.02 0.60 | 2.96 \$118 | 0.27 \$11 | 0.25 \$10 | 40.00 0.00 \$0 | 3.48 \$139 |

| Line # | Description | on | | | | |
|-----------------------|--------------|--------------|--------------|-------------|-------------|--------------|
| | Manhours | Matl | Labor | Equipment | Sub | Total |
| | ======== | | | | | |
| U02 SITEWORK | 1023 | \$118 | \$20,081 | \$5,484 | \$0 | \$25,683 |
| 0331305010 | 6" THICK | SLAB FOR | NEW TRANS | SFORMER | 48.00 | C F |
| Unit values Totals | 0.02 1.15 | 1.45 \$70 | 0.28 \$13 | 0.00 \$0 | 0.00 \$0 | 1.73 \$83 |
| U03 CONCRETE | 2 | \$70 | \$13 | \$0 | \$0 | \$83 |

| Line # | Descripti | on | | | | |
|-----------------------|----------------|--------------------|------------------|--------------|----------------------|-------------------------|
| | Manhours | Matl | Labor | Equipment | Sub | Total |
| | ======= | | | | =====: | ======= |
| 1554512050 | HTG INFRA | RED ELEC | 6KW 20478 | BBTU | 7.00 | m - |
| Unit values Totals | 2.67 18.67 | 334.67 \$2,343 | 44.47 \$311 | 0.00 \$0 | 7.00 0.00 \$0 | 379.13 \$2,654 |
| 1554512100 | HTG INFRA | RED ELEC | 13.5KW 46 | 5075.5BTU | 7 00 | D - |
| Unit values Totals | 3.20 22.40 | 455.20 \$3,186 | 53.24 \$373 | 0.00 \$0 | 7.00 0.00 \$0 | 508.44 \$3,559 |
| 1554512150 | HTG INFRA | RED ELEC | 27KW 9215 | SIBTU | 22.00 | n - |
| Unit values Totals | 4.00 132.00 | 879.31 \$29,017 | 66.55 \$2,196 | 0.00 \$0 | 33.00 0.00 \$0 | 945.86 \$31,213 |
| 1574205220 | ELECTRIC ' | rhermosta i | w/ cover | R AND WIRING | 46.00 | _ |
| Unit values Totals | 1.00 | 74.93 \$2,997 | 20.81 \$832 | 0.00 \$0 | 40.00 0.00 \$0 | Ea. 95.74 \$3,829 |
| U15 MECHANICAL | 214 | \$37,543 | \$3,712 | \$0 | \$0 | \$41,255 |

| Line # | Descript | ion | | | | |
|-----------------------|----------------|----------------------|--------------------|-----------------|-----------------------|----------------------|
| | Manhours | | Labor E | | | Total |
| | ======= | ======= | | | ====== | |
| 1611400600 | MINERAL | INSULATED (| CABLE 600V | 1 #4 | 3 00 | C.L.F. |
| Unit values Totals | 6.67 20.00 | 402.81 \$1,208 | 103.21 \$310 | 0.00 \$0 | 0.00 | 506.02 \$1,518 |
| 1611400800 | MINERAL | INSULATED (| CABLE 600V | 1 #2 | 6 00 | C.L.F. |
| Unit values Totals | 7.27 43.64 | 537.08 \$3,222 | 112.80 \$677 | 0.00 \$0 | 0.00 | 649.88 \$3,899 |
| 1621100220 | OUTLET B | OXES STEEL | 4" SQ, 2- | 1/8" DEEP, | | T- |
| Unit values Totals | 0.40 | 2.36 \$94 | 6.20 \$248 | 0.00 \$0 | 40.00 0.00 \$0 | 8.57 |
| 1621100250 | OUTLET B | OX STEEL 4' | ' COVERS BL | ANK | 40.00 | П- |
| Unit values Totals | 0.13 5.00 | 0.54 \$21 | 1.94 \$78 | 0.00 \$0 | 40.00 0.00 \$0 | 2.48 |
| 1631200100 | HEATING : | SYSTEM POWE | er / contro | L PANEL | 70.00 | n - |
| Unit values Totals | | 320.72 \$3,207 | 45.97 \$460 | 0.00 \$0 | | 366.69 \$3,667 |
| 1641600500 | TRANSFORI | MER OIL PAI | 15KV 480V | 3P1000KVA | | _ |
| Unit values Totals | 76.92 76.92 | 17408.80 \$17,409 | 1184.40 \$1,184 | 225.60 \$226 | 1.00 0.00 \$0 | 18818.80 \$18,819 |
| 1671104800 | UNDERGRO | UND DUCT BA | NK PVC TYP | E EB 4 - 2 | | |
| Unit values Totals | 0.13 33.25 | 1.48 \$370 | 2.07 \$517 | 0.00 \$0 | 250.00 0.00 \$0 | 3.55 \$887 |
| U16 ELECTRICAL | 225 | \$25,531 | \$3,474 | \$226 | \$0 | \$29,231 |

| ======================================= | ======= | | ======= | | ======= | |
|--|------------------------------|------------|----------|-----------|---------|------------------------------|
| Line # | Descript | ion | | | | |
| | Manhours | Matl | Labor | Equipment | Sub | Total |
| | ======= | ======= | | | | |
| ESTIMATE TOTAL | 2897 | \$114,563 | \$58,694 | \$5,710 | \$0 | \$178,967 |
| SALES TAX MATL MARKUP LABOR MARKUP | 0.00% 0.00% 0.00% | \$0 \$0 | \$0 | | | |
| EQUIPT MARKUP SUB MARKUP | 0.00% | | Ψ° | \$0 | \$0 | |
| TOTAL BEFORE COCONTINGENCY BOND | ONTINGENC 10.00% 0.00% | \$114,563 | \$58,694 | \$5,710 | \$0 | \$178,967 \$17,897 \$0 |
| PROFIT | 10.00% | | | | | \$17,897 |
| JOB TOTAL | | | | | | \$214,760 |

Estimate: BLDG 3807 Date: 28-Nov-94
Description: ELECTRIC INFRARED HEATING SYSTEM COST ESTIMATE
Project: LIMITED EEAP(HGR) Bid Date:
Location: FORT BRAGG, N. C Job #: 94013.04
Sq. footage: 31586 City indx:Raleigh, NC

| ===== | | ======= | SUMMARY | ======== | ======= | | ======== |
|--|---------------------------|---|---|-----------------|----------------|-----------------------------|--|
| | | Manhours | Matl | Labor | Equipment | Sub | Total |
| | <u> </u> | | | | | | |
| U02 SI' U03 COI U15 ME | | 1433 1023 2 214 225 | \$51,301 \$118 \$70 \$37,543 \$25,531 | \$13 \$3,712 | \$5,484 \$0 | \$00 \$00 \$\$0 \$ | \$82,715 \$25,683 \$83 \$41,255 \$29,231 |
| TOTAL | | 2897 | \$114,563 | \$58,694 | \$5,710 | \$0 | \$178,967 |
| SALES ' MATL MI LABOR I EQUIPT SUB MAI | ARKUP MARKUP MARKUP | 0.00% 0.00% 0.00% 0.00% 0.00% | \$0 \$0 | \$0 | \$0 | \$0 | |
| _ | BEFORE CO | ONTINGENC 10.00% 0.00% 10.00% | \$114,563 | \$58,694 | \$5,710 | \$0 | \$178,967 \$17,897 \$0 \$17,897 |
| JOB TO | ral | | | | | | \$214,760 |

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STUDY: 3954EC03
    ENERGY CONSERVATION INVESTMENT PROGRAM (ECIP) LCCID FY99
INSTALLATION & LOCATION: FORT BRAGG REGION NOS. 4 CENSUS: 3
PROJECT NO. & TITLE: 94013.04 LES: ECO3 - ELECTRIC INFRARED HEAT
                                                                 LCCID FY95 (92)
    FISCAL YEAR 95 DISCRETE PORTION NAME: ECO
    ANALYSIS DATE: 12-05-94 ECONOMIC LIFE 20 YEARS PREPARED BY: G.B. LOFLIN
    1. INVESTMENT
    A. CONSTRUCTION COST $
                                     105584.
                                     5279.
    B. SIOH
    C. DESIGN COST $
D. TOTAL COST (1A+1B+1C) $
                                       5279.
                                   116142.
    E. SALVAGE VALUE OF EXISTING EQUIPMENT $
                                                      . 0.
    F. PUBLIC UTILITY COMPANY REBATE
                                                       0.
    G. TOTAL INVESTMENT (1D - 1E - 1F)
                                                                  116142.
    2. ENERGY SAVINGS (+) / COST (-)
    DATE OF NISTIR 85-3273-X USED FOR DISCOUNT FACTORS OCT 1994
                  UNIT COST SAVINGS ANNUAL $ DISCOUNT
                                                                        DISCOUNTED
        FUEL
                  $/ MWH(1)
                               MWH/YR(2)
                                              SAVINGS (3) FACTOR (4) SAVINGS (5)
        A. ELECT $ 34.95
B. DIST $ 19.18
C. RESID $ .00
D. NAT G $ 13.44
                                -115.
                                                  -4002.
                                                                15.08
                                                                             -60357.
                                                               18.57
                                  900.
                                                  17258.
                                                                             320484.
                                   0.
                                                                21.02
                                                     0.
                                                                                  0.
                                  0.

0.

0.

$

0.

$

785.
                                                       0.
                                                               18.58
                                                                                  0.
        E. COAL $ .00
F. PPG $ .00
                                                       0.
                                                               16.83
                                                                                  0.
                                                 0.
-24975.
                                                               17.38
                      .00
                                                                                  0.
        M. DEMAND SAVINGS
                                                                            -371628.
                                                               14.88
        N. TOTAL
                                                 -11719.
                                                                            -111501.
    3. NON ENERGY SAVINGS(+) / COST(-)
       A. ANNUAL RECURRING (+/-)
                                                                        $ 3081.
            (1) DISCOUNT FACTOR (TABLE A)
                                                              14.88
            (2) DISCOUNTED SAVING/COST (3A X 3A1)
                                                                            45848.
       B. NON RECURRING SAVINGS(+) / COSTS(-)
                                   SAVINGS(+) YR
COST(-) OC
                                                       DISCNT
                                                                  DISCOUNTED
                                     COST(-)
                    ITEM
                                                      FACTR
                                                                  SAVINGS(+)/
                                        (1)
                                                (2)
                                                       (3)
                                                                  COST(-)(4)
        d. TOTAL
                                          Ο.
                                                                          0.
       C. TOTAL NON ENERGY DISCOUNTED SAVINGS(+)/COST(-)(3A2+3Bd4)$ 45848.
    4. FIRST YEAR DOLLAR SAVINGS 2N3+3A+(3Bd1/(YRS ECONOMIC LIFE))$
    5. SIMPLE PAYBACK PERIOD (1G/4)
                                                                         -13.45 YEARS
    6. TOTAL NET DISCOUNTED SAVINGS (2N5+3C)
                                                                        $ -65653.
    7. SAVINGS TO INVESTMENT RATIO
                                               (SIR) = (6 / 1G) =
        (IF < 1 PROJECT DOES NOT QUALIFY)
**** Project does not qualify for ECIP funding; 4,5,6 for information only.
    8. ADJUSTED INTERNAL RATE OF RETURN (AIRR):
                                                                         N/A
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LIFE CYCLE COST ANALYSIS SUMMARY

Estimate: BLDG 3954 Date: 28-Nov-94
Description: ELECTRIC INFRARED HEATING SYSTEM COST ESTIMATE Date: 28-Nov-94 Project: LIMITED EEAP(HGR) Bid Date:
Location: FORT BRAGG, N.C Job #: 94013.04
Sq. footage: 19500 City indx:Raleigh, NC Line # Description Manhours Matl Labor Equipment Sub Total 0913100280 FEEDER INSTALLATION, INCLUDING CONDUIT AND WIRE, 200 AMPERES 0.31 9.45 612.00 \$18,890 6.71 0.00 \$13,423 \$0 2000.00 L.F. 0.00 16.16 Unit values \$0 \$32,313 Totals SWITCHGEAR INST, INCL SWBD, PANELS & CIRC 0914100200 1.00 EACH BKR, 400 AMPS 50.36 2731.70 1099.80 0.00 50.36 \$2,732 \$1,100 \$0 0.00 3831.50 Unit values \$0 \$3,832 Totals A09 ELECTRICAL 663 \$21,622 \$14,523 \$0 \$0 \$36,145

| | ======================================= | ======= | ======== | ======== | ======= | | ========= |
|---|---|------------------------|-----------------|-----------------|-----------------|----------------|-----------------|
| | Line # | Descripti | on | | | | |
| | | Manhours | Matl | Labor E | quipment | Sub | Total |
| | ======================================= | | | | | | |
| | 0205541750 | | | | | 30.00 | |
| | | | | 1.73 \$52 | | | 4.23 \$127 |
| | 0205543200 | SITE REMO 4"DIAMET | VAL,STEEL ER | PIPE, WELDE | D CONNECTI | ON, 1600.00 | L.F. |
| | Unit values Totals | 0.15 240.00 | 0.00 \$0 | 2.61 \$4,180 | 1.06 \$1,702 | 0.00 \$0 | 3.68 \$5,882 |
| | 0207183600 | HVAC DEMO | , MECH EQPT | T HEAVY ITE | M | 1.50 | Ton |
| | Unit values Totals | 14.55 21.82 | | 314.87 \$472 | 0.00 | 0.00 | 314.87 \$472 |
| | 0208400600 | REMOVE PI | PE INSULAT | TION UP TO | 4" DIAMETE | R PIPE 1400.00 | L.F. |
| | Unit values Totals | 0.07 99.40 | 0.00 \$0 | 1.63 \$2,287 | 0.20 \$274 | 0.00 | 1.83 \$2,561 |
| • | 0208401000 | DIAMETER | | | | | _ |
| | Unit values Totals | 0.20 32.00 | 0.00 \$0 | 4.60 \$735 | \$90 | \$0 | \$825 |
| | 0222540060 | CY TRAC/L | DR/B'HOE | | | 15.00 | |
| | Unit values Totals | 0.08 1.20 | 0.00 \$0 | 1.47 \$22 | 1.17 \$17 | 0.00 \$0 | 2.64 \$39 |
| | 0222541900 | TAMPING T | RENCH B'F | • | | ADD 15.00 | C.Y. |
| | Unit values Totals | 0.09 1.34 | 0.00 \$0 | 1.44 \$22 | 0.55 \$8 | 0.00 | 1.99 \$30 |
| | 0222543020 | BACKFILL BUCKET, M | | E.LOADER, | WHEEL MTD. | , 1CY 15.00 | C.Y. |
| | Unit values Totals | 0.03 | 0.00 | 0.58 \$9 | 0.48 \$7 | 0.00 | 1.06 \$16 |
| | 0251040380 | ASPHALTIC COURSE, 2 | | PAVEMENT, | PAVING, WE | ARING 30.00 | S.Y. |
| | Unit values Totals | 0.02 0.45 | 2.96 \$89 | 0.27 \$8 | 0.25 \$7 | 0.00 | 3.48 \$104 |

| | === |
|--|-----|
|--|-----|

| Line # | Description | on | | | | |
|---|--------------|--------------|--------------|-------------|--------|--------------|
| | Manhours | Matl | Labor | Equipment | Sub | Total |
| ======================================= | ======== | ======= | | | ====== | |
| U02 SITEWORK | 400 | \$89 | \$7,787 | \$2,180 | \$0 | \$10,056 |
| 0331305010 | 6" THICK | SLAB FOR | NEW TRANS | SFORMER | 48.00 | S F |
| Unit values Totals | 0.02 1.15 | 1.45 \$70 | 0.28 \$13 | 0.00 \$0 | 0.00 | 1.73 \$83 |
| U03 CONCRETE | 2 | \$70 | \$13 | \$0 | \$0 | \$83 |

| ======================================= | ======= | | ======= | | ====== | |
|---|---------------|--------------------|------------------|--------------|----------------------|-------------------------|
| Line # | Descript | ion | | | | |
| | Manhours | Matl | Labor | Equipment | Sub | Total |
| ======================================= | ======= | | | | | |
| 1554512150 | HTG INFRA | A RED ELEC | 27KW 9215 | SIBTU | 20.00 | To. |
| Unit values Totals | 4.00 80.00 | 879.31 \$17,586 | 66.55 \$1,331 | 0.00 \$0 | 0.00 | 945.86 \$18,917 |
| 1574205220 | ELECTRIC | THERMOSTAT | W/ COVER | R AND WIRING | | |
| Unit values Totals | 1.00 | 74.93 \$1,499 | 20.81 \$416 | 0.00 \$0 | 20.00 0.00 \$0 | Ea. 95.74 \$1,915 |
| U15 MECHANICAL | 100 | \$19,085 | \$1,747 | \$0 | \$0 | \$20,832 |

| Line # | Descripti | lon | | | | |
|-----------------------|----------------|----------------------|-----------------|-----------------|----------------------|-----------------------------|
| | Manhours | Matl | Labor E | quipment | Sub | Total |
| | | | | | | |
| 1611400600 | MINERAL 1 | NSULATED C | CABLE 600V | 1 #4 | 2 50 | C.L.F. |
| Unit values Totals | 6.67 16.67 | 402.81 \$1,007 | 103.21 \$258 | 0.00 \$0 | 0.00 | 506.02 \$1,265 |
| 1611400800 | MINERAL I | NSULATED C | CABLE 600V | 1 #2 | F 00 | |
| Unit values Totals | 7.27 36.37 | 537.08 \$2,685 | 112.80 \$564 | 0.00 \$0 | 0.00 | C.L.F. 649.88 \$3,249 |
| 1621100220 | OUTLET BO | XES STEEL, | 4" SQ, 2-3 | 1/8" DEEP, | | 7- |
| Unit values Totals | 0.40 8.00 | 2.36 \$47 | 6.20 \$124 | 0.00 \$0 | 20.00 0.00 \$0 | 8.57 \$171 |
| 1621100250 | OUTLET BO | X STEEL 4" | COVERS BLA | ANK | 20.00 | E-a |
| Unit values Totals | 0.13 2.50 | 0.54 \$11 | 1.94 \$39 | 0.00 \$0 | 0.00 | 2.48 \$50 |
| 1631200100 | HEATING S | YSTEM POWE | R / CONTROI | L PANEL | 7.00 | Eo |
| Unit values Totals | 2.96 20.74 | 320.72 \$2,245 | 45.97 \$322 | 0.00 | 0.00 \$0 | 366.69 \$2,567 |
| 1641600300 | TRANSFORM | ER OIL PAD | 15KV 480V | 3P500KVA | 1 00 | T- |
| Unit values Totals | 50.00 50.00 | 11760.20 \$11,760 | 775.50 \$776 | 146.08 \$146 | 1.00 0.00 \$0 | |
| 1671104800 | UNDERGROU | ND DUCT BA | NK PVC TYPE | E EB 4 - 2' | DIA 250.00 | T 17 |
| Unit values Totals | 0.13 33.25 | 1.48 \$370 | 2.07 \$517 | 0.00 \$0 | 0.00 | 3.55 \$887 |
| U16 ELECTRICAL | 168 | \$18,125 | \$2,600 | \$146 | \$0 | \$20,871 |

| | | | ====== | ======== | | ======= |
|---|-------------------------|------------|----------|-----------|---------|---------------------|
| Line # | Descripti | on | | | | |
| | Manhours | Matl | Labor | Equipment | Sub | Total |
| | ======== | | ======= | | ======= | |
| ESTIMATE TOTAL | 1333 | \$58,991 | \$26,670 | \$2,326 | \$0 | \$87,987 |
| SALES TAX MATL MARKUP | 0.00% 0.00% | \$0 \$0 | \$0 | | | |
| LABOR MARKUP EQUIPT MARKUP SUB MARKUP | 0.00% 0.00% 0.00% | ₩- | ŞU | \$0 | \$0 | |
| CONTINGENCY | ONTINGENC | \$58,991 | \$26,670 | \$2,326 | \$0 | \$87,987 \$8,799 |
| BOND PROFIT | 0.00% 10.00% | | | | | \$0 \$8,799 |
| JOB TOTAL | | | | | | \$105,584 |

Estimate: BLDG 3954 Date: 28-Nov-94

Description: ELECTRIC INFRARED HEATING SYSTEM COST ESTIMATE Project: LIMITED EEAP(HGR) Bid Date:
Location: FORT BRAGG, N.C Job #: 94013.04
Sq. footage: 19500 City indx:Raleigh, NC

| SUMMARY |
|---------|
| SUMMARI |

| SUMMARI | | | | | | |
|--|---|--|---|---------------------------------------|--|--|
| | Manhours | Matl | Labor | Equipment | Sub | Total |
| ======================================= | ======================================= | | ====== | | | |
| A09 ELECTRICAL U02 SITEWORK U03 CONCRETE U15 MECHANICAL U16 ELECTRICAL | 663 400 2 100 168 | \$21,622 \$89 \$70 \$19,085 \$18,125 | \$14,523 \$7,787 \$13 \$1,747 \$2,600 | \$0 \$2,180 \$0 \$0 \$146 | \$ 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 | \$36,145 \$10,056 \$83 \$20,832 \$20,871 |
| TOTAL | 1333 | \$58,991 | \$26,670 | \$2,326 | \$0 | \$87,987 |
| SALES TAX MATL MARKUP LABOR MARKUP EQUIPT MARKUP SUB MARKUP | 0.00% 0.00% 0.00% 0.00% 0.00% | \$0 \$0 | \$0 | \$0 | \$ 0 | |
| TOTAL BEFORE CO CONTINGENCY BOND PROFIT | ONTINGENC 10.00% 0.00% 10.00% | \$58,991 | \$26,670 | \$2,326 | \$0 | \$87,987 \$8,799 \$0 \$8,799 |
| JOB TOTAL | | | | | | \$105,584 |

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LIFE CYCLE COST ANALYSIS SUMMARY STUDY: 3962ECO3
ENERGY CONSERVATION INVESTMENT PROGRAM (ECIP) LCCID FY95 (92)
    INSTALLATION & LOCATION: FORT BRAGG REGION NOS. 4 CENSUS: 3
    PROJECT NO. & TITLE: 94013.04 LES: ECO3 - ELECTRIC INFRARED HEAT FISCAL YEAR 95 DISCRETE PORTION NAME: ECO
    ANALYSIS DATE: 12-13-94 ECONOMIC LIFE 20 YEARS PREPARED BY: G.B. LOFLIN
    1. INVESTMENT
    A. CONSTRUCTION COST
                                    144029.
    B. SIOH
                                      7201.
    C. DESIGN COST
                                      7201.
    D. TOTAL COST (1A+1B+1C) $ 158431.
    E. SALVAGE VALUE OF EXISTING EQUIPMENT $
    F. PUBLIC UTILITY COMPANY REBATE
    G. TOTAL INVESTMENT (1D - 1E - 1F)
                                                                158431.
    2. ENERGY SAVINGS (+) / COST (-)
    DATE OF NISTIR 85-3273-X USED FOR DISCOUNT FACTORS OCT 1994
                 UNIT COST SAVINGS ANNUAL $ DISCOUNT $/ MWH(1) MWH/YR(2) SAVINGS(3) FACTOR(4)
                                                                      DISCOUNTED
        FUEL
                                                         FACTOR (4)
                                                                      SAVINGS (5)
        A. ELECT $ 34.95
B. DIST $ 19.18
C. RESID $ .00
                               -178.
                                                -6206.
                                                              15.08
                                                                           -93582.
                                953.
                                               18286.
                                                              18.57
                                                                           339575.
                                 0.
                                                 0.
                                                              21.02
                                                                                0.
        D. NAT G $ 13.44
                                   Ο.
                                   0.
0.
0.
                                                     Ο.
                                                             18.58
                                                                                0.
                                           $ 0.
$ 0.
$ -29484.
$ -17404.
        E. COAL $ .00
                                                    0.
                                                             16.83
                                                                                0.
        F. PPG $
                     .00
                                                             17.38
                                                     Ο.
                                                                                0.
        M. DEMAND SAVINGS
                                                              14.88
                                                                          -438722.
                                  776.
        N. TOTAL
                                                                          -192729.
    3. NON ENERGY SAVINGS(+) / COST(-)
       A. ANNUAL RECURRING (+/-)
                                                                      $
                                                                            4950.
           (1) DISCOUNT FACTOR (TABLE A)
                                                             14.88
           (2) DISCOUNTED SAVING/COST (3A X 3A1)
                                                                            73660.
       B. NON RECURRING SAVINGS(+) / COSTS(-)
                                  SAVINGS(+) YR
                                                     DISCNT
                                                                 DISCOUNTED
                                    COST(-)
                    ITEM
                                               OC
                                                     FACTR
                                                                 SAVINGS(+)/
                                       (1)
                                               (2)
                                                     (3)
                                                                 COST(-)(4)
        d. TOTAL
                                         0.
                                                                        0.
       C. TOTAL NON ENERGY DISCOUNTED SAVINGS (+) / COST (-) (3A2+3Bd4)$ 73660.
   4. FIRST YEAR DOLLAR SAVINGS 2N3+3A+(3Bd1/(YRS ECONOMIC LIFE))$ -12453.
   5. SIMPLE PAYBACK PERIOD (1G/4)
                                                                      -12.72 YEARS
   6. TOTAL NET DISCOUNTED SAVINGS (2N5+3C)
                                                                     $ -119069.
    7. SAVINGS TO INVESTMENT RATIO
                                             (SIR) = (6 / 1G) =
                                                                        -.75
       (IF < 1 PROJECT DOES NOT QUALIFY)
**** Project does not qualify for ECIP funding; 4,5,6 for information only.
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8. ADJUSTED INTERNAL RATE OF RETURN (AIRR):

PAGE 9-67

N/A

A09 ELECTRICAL 987 \$34,911

______ Estimate: BLDG 3962 28-Nov-94 Date: Description: ELECTRIC INFRARED HEATING SYSTEM COST ESTIMATE Project: LIMITED EEAP(HGR) Bid Date: FORT BRAGG, N.C Job #: 94013.04 Location: 19500 City indx:Raleigh, NC Sq. footage: Line # Description ______ Manhours Matl Labor Equipment Sub Total _______ 0913100280 FEEDER INSTALLATION, INCLUDING CONDUIT AND WIRE, 200 AMPERES 3000.00 L.F. Unit values 0.31 6.71 0.00 0.00 16.16 9.45 \$28,336 \$20,135 Totals 918.00 \$0 \$0 \$48,471 0914100240 SWITCHGEAR INST, INCL SWBD, PANELS & CIRC BKR, 600 AMPERES 1.00 EACH Unit values 68.07 6574.60 0.00 1494.60 0.00 8069.20 Totals 68.07 \$6,575 \$1,495 \$0 \$0 \$8,070

\$21,630

\$0

\$0

\$56,541

| ======================================= | ========= | ======= | ======= | ======= | ======= | |
|---|----------------------------------|--------------|-----------------|-----------------------------|-------------------------|-----------------|
| Line # | Description | n | | | | |
| | Manhours | Matl | | Equipment | | Total |
| | | ======= | ======= | | | ======= |
| 0205541750 | PAVEMENT F | REMOVAL, | BITUMINOUS | , 4" TO 6" | | S.Y. |
| Unit values Totals | 0.10 2.85 | 0.00 \$0 | 1.73 \$52 | 2.50 \$75 | 0.00 | 4.23 |
| 0205543200 | SITE REMOV | | | | | L.F. |
| Unit values Totals | | 0.00 | 2.61 \$4,180 | 1.06 \$1,702 | 0.00 | 3.68 |
| 0207183600 | HVAC DEMO, | MECH EQP | T HEAVY IT | EM | 7 50 | M |
| Unit values Totals | 14.55 21.82 | 0.00 \$0 | 314.87 \$472 | 0.00 \$0 | 1.50 0.00 \$0 | 314.87 |
| 0208400600 | REMOVE PIP | E INSULA | TION UP TO | 4" DIAMETE | | T 17 |
| Unit values Totals | 0.07 99.40 | 0.00 \$0 | 1.63 \$2,287 | 0.20 \$274 | 1400.00 0.00 \$0 | 1.83 \$2,561 |
| 0208401000 Unit values | REMOVE INS DIAMETER P 0.20 | | FROM PIPE : | FITTING, UP 0.56 \$90 | TO 4" 160.00 0.00 | Ea. 5.16 |
| Totals | 32.00 | \$0 | \$735 | \$90 | \$0 | \$825 |
| 0222540060 | CY TRAC/LD | R/R'HOE | | 1'-4' DEEP, | 15 00 | C.Y. |
| Unit values Totals | 0.08 1.20 | 0.00 \$0 | 1.47 \$22 | 1.17 \$17 | 0.00 \$0 | 2.64 \$39 |
| 0222541900 | TAMPING TR | ENCH B'F | ILL, VIBRA | ring plate, | | G V |
| Unit values Totals | 0.09 1.34 | 0.00 \$0 | 1.44 \$22 | 0.55 \$8 | 15.00 0.00 \$0 | |
| 0222543020 | BACKFILL T BUCKET, MI | | .E.LOADER, | WHEEL MTD. | , 1CY 15.00 | CV |
| Unit values Totals | 0.03 0.45 | 0.00 \$0 | 0.58 \$9 | 0.48 \$7 | 0.00 | 1.06 \$16 |
| 0251040380 | ASPHALTIC COURSE, 2" | | PAVEMENT, | PAVING, WE | ARING 30.00 | s v |
| Unit values Totals | 0.02 0.45 | 2.96 \$89 | 0.27 \$8 | 0.25 \$7 | 0.00 | 3.48 \$104 |

| Line # | Description | on | | | | |
|-----------------------|--------------|--------------|--------------|-------------|-------|----------|
| | Manhours | Matl | Labor | Equipment | Sub | Total |
| U02 SITEWORK | 400 | \$89 | \$7,787 | \$2,180 | \$0 | \$10,056 |
| 0331305010 | 6" THICK | SLAB FOR | NEW TRANS | SFORMER | 48.00 | c tr |
| Unit values Totals | 0.02 1.15 | 1.45 \$70 | 0.28 \$13 | 0.00 \$0 | 0.00 | 1.73 |
| U03 CONCRETE | 2 | \$70 | \$13 | \$0 | \$0 | \$83 |

| Line # | Descripti | on | | | | |
|-----------------------|---------------|--------------------|------------------|--------------|-------|--------------------|
| | Manhours | Matl | Labor | Equipment | Sub | Total |
| | ======== | | | | | |
| 1554512050 | HTG INFRA | RED ELEC | 6KW 20478 | BBTU | 5.00 | Fa |
| Unit values Totals | 2.67 13.34 | | 44.47 \$222 | 0.00 \$0 | 0.00 | |
| 1554512100 | HTG INFRA | RED ELEC | 13.5KW 46 | 5075.5BTU | 5.00 | Fo |
| Unit values Totals | 3.20 16.00 | 455.20 \$2,276 | 53.24 \$266 | 0.00 \$0 | 0.00 | |
| 1554512150 | HTG INFRA | RED ELEC | 27KW 9215 | SIBTU | 20.00 | E o |
| Unit values Totals | 4.00 80.00 | 879.31 \$17,586 | 66.55 \$1,331 | 0.00 \$0 | 0.00 | 945.86 \$18,917 |
| 1574205220 | ELECTRIC ' | THERMOSTA | r w/ cover | R AND WIRING | 30.00 | E o |
| Unit values Totals | 1.00 | 74.93 \$2,248 | 20.81 \$624 | | 0.00 | |
| U15 MECHANICAL | 140 | \$23,783 | \$2,443 | \$0 | \$0 | \$26,226 |

| Line # | Descripti | .on | | | | |
|-----------------------|----------------|----------------------|--------------------|-----------------|-----------------------|-----------------------------|
| | Manhours | Matl | | quipment | | Total |
| | | :======: | | | ===== | |
| 1611400600 | MINERAL I | NSULATED (| CABLE 600V | 1 #4 | 2 50 | C.L.F. |
| Unit values Totals | 6.67 16.67 | 402.81 \$1,007 | 103.21 \$258 | 0.00 \$0 | 0.00 | 506.02 |
| 1611400800 | MINERAL I | NSULATED (| CABLE 600V | 1 #2 | . | |
| Unit values Totals | 7.27 36.37 | 537.08 \$2,685 | | 0.00 \$0 | 5.00 0.00 \$0 | C.L.F. 649.88 \$3,249 |
| 1621100220 | OUTLET BO | XES STEEL, | 4" SQ, 2- | 1/8" DEEP, | | _ |
| Unit values Totals | 0.40 | 2.36 \$71 | 6.20 \$186 | 0.00 \$0 | 30.00 0.00 \$0 | 8.57 \$257 |
| 1621100250 | OUTLET BO | X STEEL 4' | ' COVERS BLA | ANK | 20.00 | D - |
| Unit values Totals | 0.13 3.75 | 0.54 \$16 | 1.94 \$58 | 0.00 \$0 | 30.00 0.00 \$0 | 2.48 |
| 1631200100 | HEATING S | YSTEM POWE | er / controi | L PANEL | 5 00 | _ |
| Unit values Totals | 2.96 20.74 | 320.72 \$2,245 | 45.97 \$322 | 0.00 \$0 | 7.00 0.00 \$0 | 366.69 \$2,567 |
| 1641600500 | TRANSFORM | ER OIL PAI | 15KV 480V | 3P1000KVA | | _ |
| Unit values Totals | 76.92 76.92 | 17408.80 \$17,409 | 1184.40 \$1,184 | 225.60 \$226 | 1.00 0.00 \$0 | |
| 1671104800 | UNDERGROU | ND DUCT BA | NK PVC TYPE | E EB 4 - 2' | | |
| Unit values Totals | 0.13 33.25 | 1.48 \$370 | 2.07 \$517 | 0.00 \$0 | 250.00 0.00 \$0 | 3.55 \$887 |
| U16 ELECTRICAL | 200 | \$23,803 | \$3,089 | \$226 | \$0 | \$27,118 |

| ======================================= | | ======= | | | | |
|--|--|---|---|---|---|---|
| Line # | Descripti | on | | | | |
| | Manhours | Matl | Labor | Equipment | Sub | Total |
| ======================================= | ======== | ======== | ======= | ======================================= | | |
| ESTIMATE TOTAL | 1729 | \$82,656 | \$34,962 | \$2,406 | \$0 | \$120,024 |
| SALES TAX MATL MARKUP | 0.00% 0.00% 0.00% | \$0 \$0 | \$0 | | | |
| EQUIPT MARKUP SUB MARKUP | 0.00% | | 40 | \$0 | \$0 | |
| TOTAL BEFORE CONTINGENCY BOND PROFIT | ONTINGENC 10.00% 0.00% 10.00% | \$82,656 | \$34,962 | \$2,406 | \$0 | \$120,024 \$12,002 \$0 \$12,002 |
| JOB TOTAL | | | | | | \$144,029 |
| | ESTIMATE TOTAL SALES TAX MATL MARKUP LABOR MARKUP EQUIPT MARKUP SUB MARKUP TOTAL BEFORE COCONTINGENCY BOND PROFIT | Manhours ESTIMATE TOTAL 1729 SALES TAX 0.00% MATL MARKUP 0.00% LABOR MARKUP 0.00% EQUIPT MARKUP 0.00% SUB MARKUP 0.00% TOTAL BEFORE CONTINGENC CONTINGENCY 10.00% BOND 0.00% PROFIT 10.00% | Manhours Matl ESTIMATE TOTAL 1729 \$82,656 SALES TAX 0.00% \$0 MATL MARKUP 0.00% \$0 LABOR MARKUP 0.00% EQUIPT MARKUP 0.00% SUB MARKUP 0.00% TOTAL BEFORE CONTINGENC \$82,656 CONTINGENCY 10.00% BOND 0.00% PROFIT 10.00% | Manhours Matl Labor ESTIMATE TOTAL 1729 \$82,656 \$34,962 SALES TAX 0.00% \$0 MATL MARKUP 0.00% \$0 LABOR MARKUP 0.00% \$0 EQUIPT MARKUP 0.00% \$0 SUB MARKUP 0.00% \$0 TOTAL BEFORE CONTINGENC \$82,656 \$34,962 CONTINGENCY 10.00% BOND 0.00% PROFIT 10.00% | Manhours Matl Labor Equipment ESTIMATE TOTAL 1729 \$82,656 \$34,962 \$2,406 SALES TAX 0.00% \$0 MATL MARKUP 0.00% \$0 LABOR MARKUP 0.00% \$0 EQUIPT MARKUP 0.00% \$0 SUB MARKUP 0.00% \$0 TOTAL BEFORE CONTINGENC \$82,656 \$34,962 \$2,406 CONTINGENCY 10.00% BOND 0.00% PROFIT 10.00% | Manhours Matl Labor Equipment Sub ESTIMATE TOTAL 1729 \$82,656 \$34,962 \$2,406 \$0 SALES TAX 0.00% \$0 MATL MARKUP 0.00% \$0 LABOR MARKUP 0.00% \$0 EQUIPT MARKUP 0.00% \$0 SUB MARKUP 0.00% \$0 TOTAL BEFORE CONTINGENC \$82,656 \$34,962 \$2,406 \$0 CONTINGENCY 10.00% \$0 PROFIT 10.00% |

Estimate: BLDG 3962 Date: 28-Nov-94

Description: ELECTRIC INFRARED HEATING SYSTEM COST ESTIMATE Project: LIMITED EEAP(HGR) Bid Date:

FORT BRAGG, N.C Job #: 94013.04 City indx:Raleigh, NC Location: Sq. footage: 19500

| SUMMARY | | | | | | |
|--|---|--|---|---------------------------------------|---------------------------------|--|
| | Manhours | Matl | Labor | Equipment | Sub | Total |
| ======================================= | ======= | ======= | ====== | | ======= | |
| A09 ELECTRICAL U02 SITEWORK U03 CONCRETE U15 MECHANICAL U16 ELECTRICAL | 400 2 140 | \$34,911 \$89 \$70 \$23,783 \$23,803 | \$21,630 \$7,787 \$13 \$2,443 \$3,089 | \$0 \$2,180 \$0 \$0 \$226 | \$0 \$0 \$0 \$0 \$0 | \$56,541 \$10,056 \$83 \$26,226 \$27,118 |
| TOTAL | 1729 | \$82,656 | \$34,962 | \$2,406 | \$0 | \$120,024 |
| SALES TAX MATL MARKUP LABOR MARKUP EQUIPT MARKUP SUB MARKUP | 0.00% 0.00% 0.00% 0.00% 0.00% | \$0 \$0 | \$0 | \$0 | \$0 | |
| | ONTINGENC 10.00% 0.00% 10.00% | \$82,656 | \$34,962 | \$2,406 | \$0 | \$120,024 \$12,002 \$0 \$12,002 |
| JOB TOTAL | | | | | | \$144,029 |

LIFE CYCLE COST ANALYSIS SUMMARY STUDY: 4137ECO3
ENERGY CONSERVATION INVESTMENT PROGRAM (ECIP) LCCID FY95 (92) LIFE CYCLE COST ANALYSIS SUMMARY INSTALLATION & LOCATION: FORT BRAGG REGION NOS. 4 CENSUS: 3 PROJECT NO. & TITLE: 94013.04 LES: ECO3 - ELECTRIC INFRARED HEAT FISCAL YEAR 95 DISCRETE PORTION NAME: ECO ANALYSIS DATE: 12-05-94 ECONOMIC LIFE 20 YEARS PREPARED BY: G.B. LOFLIN 1. INVESTMENT A. CONSTRUCTION COST \$
B. SIOH \$
C. DESIGN COST \$ 91571. B. SIOH \$ 4579. C. DESIGN COST \$ 4579. D. TOTAL COST (1A+1B+1C) \$ 100729. E. SALVAGE VALUE OF EXISTING EQUIPMENT \$
F. PUBLIC UTILITY COMPANY REBATE \$
G. TOTAL INVESTMENT (1D - 1E - 1F) 0. 100729. 2. ENERGY SAVINGS (+) / COST (-) DATE OF NISTIR 85-3273-X USED FOR DISCOUNT FACTORS OCT 1994 UNIT COST SAVINGS ANNUAL \$ DISCOUNT DISCOUNTED \$/MWH(1) MWH/YR(2) SAVINGS(3) FACTOR(4) SAVINGS(5) FUEL -128. \$ -4461. 820. \$ 15725. 0. \$ 0. 0. \$ 0. 0. \$ 0. 0. \$ 0. 0. \$ 0. 692. \$ -19494. A. ELECT \$ 34.95 B. DIST \$ 19.18 C. RESID \$.00 -4461. 15.08 18.57 -67277. 292022. 0. 21.02 D. NAT G \$ 13.44 18.58 0. 16.83 17.38 14.88 E. COAL \$.00 F. PPG \$.00 0. \$ 0. \$ -290071. M. DEMAND SAVINGS N. TOTAL -65326. 3. NON ENERGY SAVINGS(+) / COST(-) A. ANNUAL RECURRING (+/-)14.88 \$ 22899. 1539. (1) DISCOUNT FACTOR (TABLE A) (2) DISCOUNTED SAVING/COST (3A X 3A1) B. NON RECURRING SAVINGS(+) / COSTS(-) SAVINGS(+) YR DISCNT DISCOUNTED COST(-) OC FACTR SAVINGS(+)/(1) (2) (3) COST(-)(4) COST(-) OC (1) (2) ITEM d. TOTAL \$ 0. 0. C. TOTAL NON ENERGY DISCOUNTED SAVINGS(+)/COST(-)(3A2+3Bd4)\$ 22899. 4. FIRST YEAR DOLLAR SAVINGS 2N3+3A+(3Bd1/(YRS ECONOMIC LIFE))\$ -6691. 5. SIMPLE PAYBACK PERIOD (1G/4) -15.05 YEARS 6. TOTAL NET DISCOUNTED SAVINGS (2N5+3C) \$ -42427. 7. SAVINGS TO INVESTMENT RATIO (SIR) = (6 / 1G) = -.42(IF < 1 PROJECT DOES NOT QUALIFY) **** Project does not qualify for ECIP funding; 4,5,6 for information only.

8. ADJUSTED INTERNAL RATE OF RETURN (AIRR):

N/A

______ 28-Nov-94 BLDG 4137 Date: Description: ELECTRIC INFRARED HEATING SYSTEM COST ESTIMATE LIMITED EEAP(HGR) Bid Date: Project: FORT BRAGG, N.C Job #: 94013.04 Location: City indx:Raleigh, NC Sq. footage: 12000 Description _____ Manhours Matl Labor Equipment Sub Total ______ FEEDER INSTALLATION, INCLUDING CONDUIT AND 0913100280 WIRE, 200 AMPERES 1800.00 L.F. 0.31 0.00 16.16 Unit values 6.71 0.00 9.45 Totals 550.80 \$17,001 \$12,081 \$0 \$0 \$29,082 0914100200 SWITCHGEAR INST, INCL SWBD, PANELS & CIRC BKR, 400 AMPS 50.36 273 1.00 EACH Unit values 2731.70 1099.80 0.00 0.00 3831.50 Totals 50.36 \$2,732 \$1,100 \$0 \$0 \$3,832 602 \$19,733 A09 ELECTRICAL \$13,181 \$0 \$0 \$32,914

| ======================================= | | | | | ======= | ========= |
|---|--------------------------|--------------|-----------------|----------------------|-------------------|-----------------|
| Line # | Description | on | | | | |
| | Manhours | | | Equipment | | Total |
| | ====== | | | | | |
| 0205541750 | PAVEMENT I | REMOVAL, I | BITUMINOUS, | 4" TO 6" | | S.Y. |
| Unit values Totals | 0.10 | 0.00 \$0 | 1.73 \$35 | 2.50 \$50 | 0.00 | 4.23 \$85 |
| 0205543200 | SITE REMOV | | | | 1000 00 | ī. F |
| Unit values Totals | 0.15 150.00 | 0.00 \$0 | 2.61 \$2,613 | 1.06 \$1,064 | 0.00 | 3.68 \$3,677 |
| 0207183600 | HVAC DEMO | MECH EQP | r heavy ite | EM | 1.00 | Ton |
| Unit values Totals | 14.55 14.55 | 0.00 \$0 | 314.87 \$315 | 0.00 \$0 | 0.00 | 314.87 \$315 |
| 0208400600 | REMOVE PI | PE INSULAT | TION UP TO | 4" DIAMETE | R PIPE 1000.00 | T. E |
| Unit values Totals | 0.07 71.00 | | 1.63 \$1,634 | 0.20 \$196 | 0.00 | 1.83 |
| 0208401000 | REMOVE INS | | FROM PIPE F | TITTING, UP | TO 4" 125.00 | Fa |
| Unit values Totals | 0.20 25.00 | 0.00 | 4.60 \$574 | 0.5 <i>6</i> \$70 | 0.00 | 5.16 \$644 |
| 0222540060 | EXCAV TREN | NCH, COMMO | ON EARTH, 1 | '-4' DEEP, | 1/2 15.00 | C V |
| Unit values Totals | 0.08 | | | 1.17 \$17 | 0.00 | 2.64 |
| 0222541900 | TAMPING TR | RENCH B'FI | LL, VIBRAT | ING PLATE, | ADD 15.00 | CV |
| Unit values Totals | 0.09 1.34 | 0.00 \$0 | 1.44 \$22 | 0.55 \$8 | 0.00 | 1.99 |
| 0222543020 | BACKFILL T BUCKET, MI | | E.LOADER, | WHEEL MTD. | , 1CY 15.00 | CV |
| Unit values Totals | 0.03 0.45 | 0.00 | 0.58 \$9 | 0.48 \$7 | 0.00 | 1.06 |
| 0251040380 | ASPHALTIC COURSE, 2" | | PAVEMENT, | PAVING, WE | ARING 20.00 | s v |
| Unit values Totals | 0.02 0.30 | 2.96 \$59 | 0.27 \$5 | 0.25 \$5 | 0.00 | 3.48 \$69 |

| Line # | Description | on _. | | | | |
|--------|-------------|-----------------|-------|-----------|-----|-------|
| | Manhours | Matl | Labor | Equipment | Sub | Total |
| | ======== | | | | | |

| | | · | | | | | |
|-----------------------|--------------|--------------|--------------|-------------|-------|---------|--|
| | Manhours | Matl | Labor | Equipment | Sub | Total | |
| U02 SITEWORK | 266 | \$59 | \$5,229 | \$1,417 | \$0 | \$6,705 | |
| 0331305010 | 6" THICK | SLAB FOR | NEW TRANS | SFORMER | 48.00 | C F | |
| Unit values Totals | 0.02 1.15 | 1.45 \$70 | 0.28 \$13 | 0.00 \$0 | 0.00 | 1.73 | |
| U03 CONCRETE | 2 | \$70 | \$13 | \$0 | \$0 | \$83 | |

| Line # | Descripti | on | | | | |
|---|-----------|-------------------|----------------|--------------|----------------------|-------------------|
| | Manhours | Matl | Labor | Equipment | Sub | Total |
| ======================================= | | ======== | | | ====== | |
| 1554512050 | HTG INFRA | RED ELEC | 6KW 20478 | BBTU | 5.00 | Fo |
| Unit values Totals | | 334.67 \$1,673 | 44.47 \$222 | 0.00 \$0 | 0.00 | |
| 1554512100 | HTG INFRA | RED ELEC | 13.5KW 46 | 5075.5BTU | F 00 | 77- |
| Unit values Totals | | 455.20 \$2,276 | 53.24 \$266 | 0.00 \$0 | 5.00 0.00 \$0 | 508.44 \$2,542 |
| 1554512150 | HTG INFRA | RED ELEC | 27KW 9215 | 51BTU | 70.00 | n - |
| Unit values Totals | | | 66.55 \$799 | 0.00 \$0 | 12.00 0.00 \$0 | 945.86 |
| 1574205220 | ELECTRIC | THERMOSTAT | W/ COVER | R AND WIRING | 00.00 | |
| Unit values Totals | 1.00 | 74.93 \$1,648 | 20.81 \$458 | 0.00 \$0 | 22.00 0.00 \$0 | 95.74 \$2,106 |
| U15 MECHANICAL | 100 | \$16,149 | \$1,745 | \$0 | \$0 | \$17,894 |

| | | ======= | | | ======= | ======== |
|-----------------------|---------------------|----------------------|-----------------|-----------------|-----------------------|-----------------------------|
| Line # | Description | on | | | | |
| | Manhours | Matl | | quipment | | Total |
| | x = = = = = = = = : | ======= | ======= | ======= | ====== | ========= |
| 1611400600 | MINERAL II | NSULATED C | ABLE 600V | 1 #4 | 0.00 | |
| Unit values Totals | 6.67 13.33 | 402.81 \$806 | 103.21 \$206 | 0.00 \$0 | 0.00 \$0 | C.L.F. 506.02 \$1,012 |
| 1611400800 | MINERAL II | NSULATED C | ABLE 600V | 1 #2 | 1 00 | a * m |
| Unit values Totals | 7.27 29.09 | 537.08 \$2,148 | 112.80 \$451 | 0.00 \$0 | 0.00 \$0 | C.L.F. 649.88 \$2,599 |
| 1621100220 | OUTLET BOX | KES STEEL, | 4" SQ, 2- | 1/8" DEEP, | | . |
| Unit values Totals | 0.40 | 2.36 \$52 | 6.20 \$136 | 0.00 \$0 | 22.00 0.00 \$0 | 8.57 \$188 |
| 1621100250 | OUTLET BOX | K STEEL 4" | COVERS BL | ANK | 22.00 | 77- |
| Unit values Totals | 0.13 2.75 | 0.54 \$12 | 1.94 \$43 | 0.00 \$0 | 22.00 0.00 \$0 | 2.48 \$55 |
| 1631200100 | HEATING SY | STEM POWE | R / CONTRO | L PANEL | 4 00 | |
| Unit values Totals | 2.96 11.85 | 320.72 \$1,283 | 45.97 \$184 | 0.00 \$0 | 4.00 0.00 \$0 | Ea. 366.69 \$1,467 |
| 1641600300 | TRANSFORME | ER OIL PAD | 15KV 480V | 3P500KVA | 7 00 | 77 - |
| Unit values Totals | 50.00 1 50.00 | .1760.20 \$11,760 | 775.50 \$776 | 146.08 \$146 | 1.00 0.00 \$0 | 12681.78 \$12,682 |
| 1671104800 | UNDERGROUN | ID DUCT BA | NK PVC TYPI | E EB 4 - 2 | | * D |
| Unit values Totals | 0.13 26.60 | 1.48 \$296 | 2.07 \$414 | | 200.00 0.00 \$0 | 3.55 \$710 |
| U16 ELECTRICAL | 143 | \$16,357 | \$2,210 | \$146 | \$0 | \$18,713 |

| ======================================= | | ======= | | | ======== | |
|---|---|------------|----------|-----------|----------|---------------------------------------|
| Line # | Descripti | on | | | | |
| | Manhours | Matl | Labor | Equipment | Sub | Total |
| | | | ===== | | | ======= |
| ESTIMATE TOTAL | 1113 | \$52,368 | \$22,378 | \$1,563 | \$0 | \$76,309 |
| SALES TAX MATL MARKUP LABOR MARKUP | 0.00% 0.00% 0.00% | \$0 \$0 | \$0 | | | |
| EQUIPT MARKUP SUB MARKUP | 0.00% 0.00% | | | \$0 | \$0 | |
| TOTAL BEFORE C CONTINGENCY BOND PROFIT | CONTINGENC 10.00% 0.00% 10.00% | \$52,368 | \$22,378 | \$1,563 | \$0 | \$76,309 \$7,631 \$0 \$7,631 |
| JOB TOTAL | | | | | | \$91,571 |

Estimate: BLDG 4137 Date: 28-Nov-94
Description: ELECTRIC INFRARED HEATING SYSTEM COST ESTIMATE
Project: LIMITED EEAP(HGR) Bid Date:
Location: FORT BRAGG, N.C Job #: 94013.04
Sq. footage: 12000 City indx:Raleigh, NC

SUMMARY

| SUMMARI | | | | | | |
|--|--|--|---|---|------------------------------------|---|
| | Manhours | Matl | Labor | Equipment | Sub | Total |
| ========= | ======= | | | ======================================= | ======= | |
| A09 ELECTRICAL U02 SITEWORK U03 CONCRETE U15 MECHANICAL U16 ELECTRICAL | 602 266 2 100 143 | \$19,733 \$59 \$70 \$16,149 \$16,357 | \$13,181 \$5,229 \$13 \$1,745 \$2,210 | \$0 \$1,417 \$0 \$0 \$146 | \$\$\$\$ \$\$\$ \$\$\$ \$ | \$32,914 \$6,705 \$83 \$17,894 \$18,713 |
| TOTAL | 1113 | \$52,368 | \$22,378 | \$1,563 | \$0 | \$76,309 |
| SALES TAX MATL MARKUP LABOR MARKUP EQUIPT MARKUP | 0.00% 0.00% 0.00% | \$0 \$0 | \$0 | \$0 | | |
| SUB MARKUP | 0.00% | | | | \$0 | |
| TOTAL BEFORE COCONTINGENCY BOND PROFIT | ONTINGENC 10.00% 0.00% 10.00% | \$52,368 | \$22,378 | \$1,563 | \$0 | \$76,309 \$7,631 \$0 \$7,631 |
| JOB TOTAL | | | | | | \$91,571 |

ENERGY CONSERVATION INVESTMENT PROGRAM (ECIP) LCCID FY95 (92) INSTALLATION & LOCATION: FORT BRAGG REGION NOS. 4 CENSUS: 3 PROJECT NO. & TITLE: 94013.04 LES: ECO3 - ELECTRIC INFRARED HEAT FISCAL YEAR 95 DISCRETE PORTION NAME: ECO 12-05-94 ECONOMIC LIFE 20 YEARS PREPARED BY: G.B. LOFLIN ANALYSIS DATE: 1. INVESTMENT A. CONSTRUCTION COST \$ 58682. 2934. B. SIOH C. DESIGN COST \$
D. TOTAL COST (1A+1B+1C) \$ 2934. 64550. E. SALVAGE VALUE OF EXISTING EQUIPMENT \$ 0. F. PUBLIC UTILITY COMPANY REBATE Ο. G. TOTAL INVESTMENT (1D - 1E - 1F) \$ 64550. 2. ENERGY SAVINGS (+) / COST (-) DATE OF NISTIR 85-3273-X USED FOR DISCOUNT FACTORS OCT 1994 UNIT COST SAVINGS ANNUAL \$ DISCOUNT DISCOUNTED MWH/YR(2) SAVINGS(3) FACTOR(4) SAVINGS(5) FUEL \$/ MWH(1) A. ELECT \$ 34.95 B. DIST \$ 19.18 C. RESID \$.00 D. NAT G \$ 13.44 -55. -1919. 15.08 -28940. \$ 563. 10806. 18.57 200675. 0. Ο. \$ 21.02 0. Ο. 0. 18.58 ٥. 0. E. COAL \$.00 Ο. 16.83 0. .00 F. PPG \$ 0. 0. 17.38 0. M. DEMAND SAVINGS -8741. 14.88 -130066. N. TOTAL 509. 146. 41669. 3. NON ENERGY SAVINGS(+) / COST(-) A. ANNUAL RECURRING (+/-)\$ 3621. (1) DISCOUNT FACTOR (TABLE A) 14.88 (2) DISCOUNTED SAVING/COST (3A X 3A1) 53876. B. NON RECURRING SAVINGS(+) / COSTS(-) SAVINGS(+) YR COST(-) OC DISCNT DISCOUNTED ITEM SAVINGS(+)/ FACTR (1)(2) (3) COST(-)(4)d. TOTAL \$ 0. 0. C. TOTAL NON ENERGY DISCOUNTED SAVINGS(+)/COST(-)(3A2+3Bd4)\$ 53876. 4. FIRST YEAR DOLLAR SAVINGS 2N3+3A+(3Bd1/(YRS ECONOMIC LIFE))\$ 3767. 5. SIMPLE PAYBACK PERIOD (1G/4) 17.14 YEARS 6. TOTAL NET DISCOUNTED SAVINGS (2N5+3C) \$ 95544. 7. SAVINGS TO INVESTMENT RATIO (SIR) = (6 / 1G) =1.48 (IF < 1 PROJECT DOES NOT QUALIFY) **** Project does not qualify for ECIP funding; 4,5,6 for information only.

LIFE CYCLE COST ANALYSIS SUMMARY

8. ADJUSTED INTERNAL RATE OF RETURN (AIRR):

N/A

STUDY: 4242EC03

Estimate: BLDG 4242 Date: 28-Nov-94

LIMITED EEAP(HGR) Bid Date:

Description: ELECTRIC INFRARED HEATING SYSTEM COST ESTIMATE

Project: Location:

FORT BRAGG, N.C Job #:

94013.04

Location: FORT BRAGG, N.C Sq. footage: 6000

City indx:Raleigh, NC

Description ______

Manhours Matl Labor Equipment Sub Total _______

0913100280 FEEDER INSTALLATION, INCLUDING CONDUIT AND WIRE, 200 AMPERES 1000.00 L.F. 6.71 Unit values 0.31 9.45 0.00

0.00 16.16 \$9,445 Totals 306.00 \$6,712 \$0 \$0 \$16,157

0914100200 SWITCHGEAR INST, INCL SWBD, PANELS & CIRC

BKR, 400 AMPS 1.00 EACH 1099.80 0.00 Unit values 50.36 2731.70 0.00 3831.50 Totals 50.36 \$2,732 \$1,100 \$0 \$0 \$3,832

A09 ELECTRICAL 357 \$12,177 \$7,812 \$0 \$0 \$19,989

| ======================================= | | ====== | ======= | ======== | | ======== |
|---|---------------------------|--------------|-----------------|---------------|-----------------------|------------------------|
| Line # | Descripti | .on | | | | |
| | Manhours | Matl | | Equipment | | Total |
| | ======== | ======= | =======: | ======== | ======= | ======== |
| 0205541750 | PAVEMENT | REMOVAL, | BITUMINOUS | S, 4" TO 6" | THICK 20.00 | S.Y. |
| Unit values Totals | 0.10 1.90 | 0.00 \$0 | 1.73 \$35 | 2.50 \$50 | 0.00 | 4.23 |
| 0205543200 | SITE REMO | 'ER | · | | 500.00 | L.F. |
| Unit values Totals | 0.15 75.00 | 0.00 \$0 | 2.61 \$1,306 | 1.06 \$532 | | 3.68 \$1,838 |
| 0207183600 | HVAC DEMO | , MECH EQI | PT HEAVY I | rem | | _ |
| Unit values Totals | 14.55 7.27 | 0.00 | 314.87 \$157 | 0.00 | 0.50 0.00 \$0 | Ton 314.87 \$157 |
| 0208400600 | REMOVE PI | PE INSULA | ATION UP TO | 4" DIAMETE | | |
| Unit values Totals | 0.07 | 0.00 \$0 | 1.63 \$817 | 0.20 \$98 | 500.00 0.00 \$0 | L.F. 1.83 \$915 |
| 0208401000 | REMOVE IN | | | FITTING, U | | Ea. |
| Unit values Totals | 0.20 15.00 | 0.00 | 4.60 \$345 | 0.56 \$42 | 0.00 \$0 | 5.16 |
| 0222540060 | EXCAV TRE | | | 1'-4' DEEP, | 15.00 | C.Y. |
| Unit values Totals | 0.08 1.20 | 0.00 | 1.47 \$22 | 1.17 \$17 | | 2.64 \$39 |
| 0222541900 | TAMPING T | RENCH B' | FILL, VIBRA | ATING PLATE, | | a .v |
| Unit values Totals | 0.09 1.34 | 0.00 | 1.44 \$22 | 0.55 \$8 | 15.00 0.00 \$0 | 1.99 \$30 |
| 0222543020 | BACKFILL | TRENCH, F | F.E.LOADER, | WHEEL MTD. | | a .r |
| Unit values Totals | BUCKET, M 0.03 0.45 | 0.00 \$0 | 0.58 \$9 | 0.48 \$7 | 15.00 0.00 \$0 | 1.06 \$16 |
| 0251040380 | | | E PAVEMENT, | PAVING, WE | | C V |
| Unit values Totals | COURSE, 2 0.02 0.30 | 2.96 \$59 | 0.27 \$5 | 0.25 \$5 | 20.00 0.00 \$0 | 3.48 \$69 |

| ======================================= | ========= | ====== | ====== | | ======= | |
|---|-------------|--------|---------|-----------|---------|---------|
| Line # | Description | on | | | | |
| ======================================= | Manhours | Matl | Labor | Equipment | Sub | Total |
| IIO2 SITEWORK | 138 | \$59 | \$2,718 | \$759 | \$0 | \$3,536 |

| U02 SITEWORK | 138 | \$59 | \$2,718 | \$759 | \$0 | \$3,536 |
|-----------------------|--------------|--------------|--------------|-------------|---------|--------------|
| 0331305010 | 6" THICK | SLAB FOR | NEW TRANSFO | RMER | 48.00 S | F |
| Unit values Totals | 0.02 1.15 | 1.45 \$70 | 0.28 \$13 | 0.00 \$0 | 0.00 | 1.73 \$83 |
| U03 CONCRETE | 2 | \$70 | \$13 | \$0 | \$0 | \$83 |

| ********* | ======== | ======== | ======= | | ====== | ======== |
|-----------------------|---------------|-------------------|----------------|--------------|---------------------|-------------------|
| Line # | Descripti | on | | | | |
| | Manhours | Matl | Labor | Equipment | Sub | Total |
| | | | | | | |
| 1554512150 | HTG INFRA | RED ELEC | 27KW 9215 | SIBTU | 7.00 | Fa |
| Unit values Totals | 4.00 28.00 | 879.31 \$6,155 | 66.55 \$466 | 0.00 \$0 | 0.00 | 945.86 \$6,621 |
| 1574205220 | ELECTRIC | THERMOSTAT | W/ COVER | R AND WIRING | 7 00 | _ |
| Unit values Totals | 1.00 | 74.93 \$524 | 20.81 \$146 | 0.00 \$0 | 7.00 0.00 \$0 | 95.74 \$670 |
| U15 MECHANICAL | 35 | \$6,679 | \$612 | \$0 | \$0 | \$7,291 |

| Line # | Description | on | | | | |
|--|------------------|----------------------|-----------------|-----------------|-----------------------|-------------------|
| | Manhours | Matl | | quipment | | Total |
| ====================================== | ======= | ======= | ======== | ======= | | |
| 1611400600 | MINERAL II | NSULATED C | ABLE 600V | 1 #4 | 2 00 | C.L.F. |
| Unit values Totals | 6.67 13.33 | 402.81 \$806 | 103.21 \$206 | | | 506.02 |
| 1611400800 | MINERAL IN | NSULATED C | ABLE 600V | 1 #2 | 4 00 | C.L.F. |
| Unit values Totals | 7.27 29.09 | 537.08 \$2,148 | 112.80 \$451 | 0.00 \$0 | 0.00 | 649.88 \$2,599 |
| 1621100220 | OUTLET BOX | KES STEEL, | 4" SQ, 2- | 1/8" DEEP, | | n- |
| Unit values Totals | 0.40 2.80 | 2.36 \$17 | 6.20 \$43 | 0.00 \$0 | 0.00 \$0 | |
| 1621100250 | OUTLET BOX | K STEEL 4" | COVERS BL | ANK | T 00 | n - |
| Unit values Totals | 0.13 0.88 | 0.54 \$4 | 1.94 \$14 | 0.00 | 7.00 0.00 \$0 | 2.48 \$18 |
| 1631200100 | HEATING SY | STEM POWE | R / CONTRO | L PANEL | 3.00 | Fo |
| Unit values Totals | 2.96 8.89 | 320.72 \$962 | 45.97 \$138 | 0.00 \$0 | 0.00 \$0 | 366.69 |
| 1641600300 | TRANSFORME | ER OIL PAD | 15KV 480V | 3P500KVA | 7 00 | Π- |
| Unit values Totals | 50.00 1 50.00 | .1760.20 \$11,760 | 775.50 \$776 | 146.08 \$146 | 1.00 0.00 \$0 | |
| 1671104800 | UNDERGROUN | ID DUCT BA | NK PVC TYP | E EB 4 - 2' | | |
| Unit values Totals | 0.13 19.95 | 1.48 \$222 | 2.07 \$310 | 0.00 \$0 | 150.00 0.00 \$0 | 3.55 \$532 |
| U16 ELECTRICAL | 125 | \$15,919 | \$1,938 | \$146 | \$0 | \$18,003 |

| ======================================= | ======= | ======= | ======= | ========= | | |
|---|---|------------|----------|-----------|-----|---------------------------------------|
| Line # | Descripti | on | | * | | |
| | Manhours | Matl | Labor | Equipment | Sub | Total |
| ======================================= | ======= | ========= | ======= | ========= | | ======= |
| ESTIMATE TOTAL | 657 | \$34,904 | \$13,093 | \$905 | \$0 | \$48,902 |
| SALES TAX MATL MARKUP LABOR MARKUP EQUIPT MARKUP SUB MARKUP | 0.00% 0.00% 0.00% 0.00% 0.00% | \$0 \$0 | \$0 | \$0 | \$0 | |
| TOTAL BEFORE C CONTINGENCY BOND PROFIT | ONTINGENC 10.00% 0.00% 10.00% | \$34,904 | \$13,093 | \$905 | \$0 | \$48,902 \$4,890 \$0 \$4,890 |
| JOB TOTAL | | | | | | \$58,682 |

Estimate:

BLDG 4242 Date: 28-Nov-94

Project: LIMITED EEAP(HGR) Bid Date:

Description: ELECTRIC INFRARED HEATING SYSTEM COST ESTIMATE

FORT BRAGG, N.C

Location:

Job #: 94013.04

Sq. footage: 6000

City indx:Raleigh, NC -

SUMMARY

| | 5 | UNIMAKT | | | | |
|--|---|---|--|-------------------------------------|--------------------------------|--|
| | Manhours | Matl | Labor | Equipment | Sub | Total |
| | ======= | ====== | | | | |
| A09 ELECTRICAL U02 SITEWORK U03 CONCRETE U15 MECHANICAL U16 ELECTRICAL | 357 138 2 35 125 | \$12,177 \$59 \$70 \$6,679 \$15,919 | \$7,812 \$2,718 \$13 \$612 \$1,938 | \$0 \$759 \$0 \$0 \$146 | \$\$\$\$ \$\$\$\$ \$\$\$ | \$19,989 \$3,536 \$83 \$7,291 \$18,003 |
| TOTAL | 657 | \$34,904 | \$13,093 | \$905 | \$0 | \$48,902 |
| SALES TAX MATL MARKUP LABOR MARKUP EQUIPT MARKUP SUB MARKUP | 0.00% 0.00% 0.00% 0.00% 0.00% | \$0 \$0 | \$0 | \$0 | \$0 | |
| TOTAL BEFORE CONTINGENCY BOND PROFIT | ONTINGENC 10.00% 0.00% 10.00% | \$34,904 | \$13,093 | \$905 | \$0 | \$48,902 \$4,890 \$0 \$4,890 |
| JOB TOTAL | | | | | | \$58,682 |

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STUDY: 7937EC03
            LIFE CYCLE COST ANALYSIS SUMMARY
 ENERGY CONSERVATION INVESTMENT PROGRAM (ECIP) LCCID INSTALLATION & LOCATION: FORT BRAGG REGION NOS. 4 CENSUS: 3
                                                            LCCID FY95 (92)
 PROJECT NO. & TITLE: 94013.04 LES: ECO3 - ELECTRIC INFRARED HEAT
 FISCAL YEAR 95 DISCRETE PORTION NAME: ECO
 ANALYSIS DATE: 12-05-94 ECONOMIC LIFE 20 YEARS PREPARED BY: G.B. LOFLIN
 1. INVESTMENT
 A. CONSTRUCTION COST $
                               197918.
                                 9896.
                           $
$
 B. SIOH
 C. DESIGN COST
                                  9896.
 D. TOTAL COST (1A+1B+1C) $
                               217710.
 E. SALVAGE VALUE OF EXISTING EQUIPMENT $
                                                   0.
 F. PUBLIC UTILITY COMPANY REBATE
                                                    Ο.
 G. TOTAL INVESTMENT (1D - 1E - 1F)
                                                             217710.
 2. ENERGY SAVINGS (+) / COST (-)
 DATE OF NISTIR 85-3273-X USED FOR DISCOUNT FACTORS OCT 1994
              UNIT COST SAVINGS ANNUAL $ DISCOUNT DISCOUNTED $/ MWH(1) MWH/YR(2) SAVINGS(3) FACTOR(4) SAVINGS(5)
     FUEL
                             -445.
2615.
0.
                             -445. $ -15548.
2615. $ 50165.
0. $ 0.
0. $ 0.
0. $ 0.
0. $ 0.
2171. $ -19497.
     A. ELECT $ 34.95
                                            -15548.
                                                           15.08
                                                                      -234467.
     B. DIST $ 19.18
                                                          18.57
                                                                      931555.
                                                          21.02
                                                                        0.
     C. RESID $ .00
     D. NAT G $ 13.44
                                                          18.58
                                                                             0.
     E. COAL $ .00
F. PPG $ .00
                                                          16.83
                                                                             0.
     F. PPG
                                                         17.38
                                                                             0.
                                                                   $ -805201.
     M. DEMAND SAVINGS
                                                           14.88
                                                                   $ -108113.
     N. TOTAL
 3. NON ENERGY SAVINGS(+) / COST(-)
    A. ANNUAL RECURRING (+/-)
                                                                         2154.
         (1) DISCOUNT FACTOR (TABLE A)
                                                       14.88
                                                                  $ 32045.
         (2) DISCOUNTED SAVING/COST (3A X 3A1)
    B. NON RECURRING SAVINGS(+) / COSTS(-)
                               SAVINGS(+) YR DISCNT
COST(-) OC FACTR
                                                            DISCOUNTED
                                 COST(-)
(1)
                 ITEM
                                                             SAVINGS(+)/
                                            (2)
                                                  (3)
                                                             COST(-)(4)
     d. TOTAL
                               $
                                                                     0.
                                      0.
    C. TOTAL NON ENERGY DISCOUNTED SAVINGS(+)/COST(-)(3A2+3Bd4)$ 32045.
 4. FIRST YEAR DOLLAR SAVINGS 2N3+3A+(3Bd1/(YRS ECONOMIC LIFE))$ -17343.
 5. SIMPLE PAYBACK PERIOD (1G/4)
                                                                    -12.55 YEARS
 6. TOTAL NET DISCOUNTED SAVINGS (2N5+3C)
                                                                   $ -76069.
 7. SAVINGS TO INVESTMENT RATIO
                                          (SIR) = (6 / 1G) =
     (IF < 1 PROJECT DOES NOT QUALIFY)
** Project does not qualify for ECIP funding; 4,5,6 for information only.
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8. ADJUSTED INTERNAL RATE OF RETURN (AIRR):

PAGE 9-91

N/A

Estimate: BLDG 7937 Date: 28-Nov-94 Description: ELECTRIC INFRARED HEATING SYSTEM COST ESTIMATE Project: LIMITED EEAP(HGR) Bid Date: Location: FORT BRAGG, N.C Job #: Location: FORT BRAGG, N.C Job #: Sq. footage: 37842 City indo 94013.04 City indx:Raleigh, NC -Description ______ Manhours Matl Labor Equipment Sub Total ______ FEEDER INSTALLATION, INCLUDING CONDUIT AND 0913100280 WIRE, 200 AMPERES 3000.00 L.F. Unit values 6.71 0.00 0.00 16.16 0.31 9.45 918.00 \$28,336 \$0 \$20,135 \$0 \$48,471 Totals 0914100360 SWITCHGEAR INST, INCL SWBD, PANELS & CIRC BKR, 1600 AMPERES 1.00 EACH 208.17 13519.60 0.00 Unit values 4568.40 0.00 18088.00 Totals 208.17 \$13,520 \$4,568 \$0 \$0 \$18,088 A09 ELECTRICAL 1127 \$41,856 \$24,703 \$0 \$0 \$66,559

| =========== | ======= | ======= | ======= | | | |
|-----------------------|------------------------|---------------|-----------------|-----------------|------------------------|------------------|
| Line # | Descripti | on | | | | |
| | Manhours | | | Equipment | | |
| | ======= | ====== | ======= | | ======= | |
| 0205541750 | PAVEMENT | REMOVAL, | BITUMINOU | S, 4" TO 6" | THICK 40.00 | S.Y. |
| Unit values Totals | 0.10 3.80 | 0.00 \$0 | 1.73 \$69 | 2.50 \$100 | 0.00 | 4.23 |
| 0205543200 | | | | | | L.F. |
| Unit values Totals | 0.15 450.00 | 0.00 \$0 | 2.61 \$7,838 | 1.06 \$3,191 | 0.00 | 3.68 \$11,029 |
| 0207183600 | | | | | 2 00 | W |
| Unit values Totals | 14.55 29.09 | 0.00 | 314.87 \$630 | 0.00 | 2.00 0.00 \$0 | 314.87 |
| 0208400600 | REMOVE PI | PE INSUL | ATION UP TO | O 4" DIAMETI | | |
| Unit values Totals | 0.07 213.00 | 0.00 \$0 | 1.63 \$4,902 | 0.20 \$587 | 3000.00 0.00 \$0 | 1.83 \$5,489 |
| 0208401000 | DIAMETER : | שתדת | | | 400 00 | T- |
| Unit values Totals | 0.20 80.00 | \$0 | \$1,838 | 0.56 \$225 | \$0 | \$2,063 |
| 0222540060 | EXCAV TRE | DR/R/HOE | | | 25 00 | C.Y. |
| Unit values Totals | 0.08 | 0.00 \$0 | 1.47 \$37 | 1.17 \$29 | 0.00 | 2.64 \$66 |
| 0222541900 | TAMPING T | RENCH B'F | FILL, VIBRA | ATING PLATE | | G V |
| Unit values Totals | 0.09 2.23 | 0.00 \$0 | 1.44 \$36 | 0.55 \$14 | 25.00 0.00 \$0 | |
| 0222543020 | BACKFILL T | | F.E.LOADER | , WHEEL MTD | | CV |
| Unit values Totals | 0.03 0.75 | 0.00 \$0 | 0.58 \$14 | | 25.00 0.00 \$0 | 1.06 \$26 |
| 0251040380 | ASPHALTIC COURSE, 2 | | E PAVEMENT | , PAVING, WE | EARING 40.00 | c v |
| Unit values Totals | 0.02 0.60 | 2.96 \$118 | 0.27 \$11 | 0.25 \$10 | 0.00 0.00 \$0 | 3.48 \$139 |

| | ======== | | .======: | | | |
|--------------|-------------|----------|-----------|-----------|-------|----------|
| Line # | Description | on | | | | |
| | Manhours | Matl | Labor | Equipment | Sub | Total |
| ========== | ======= | | | | | |
| U02 SITEWORK | 782 | \$118 | \$15,375 | \$4,168 | \$0 | \$19,661 |
| 0331305010 | 6" THICK | SLAB FOR | NEW TRANS | SFORMER | | |
| | | | | | 48.00 | S.F. |
| Unit values | 0.02 | 1.45 | 0.28 | 0.00 | 0.00 | 1.73 |
| Totals | 1.15 | \$70 | \$13 | \$0 | \$0 | \$83 |
| HO3 CONCRETE | 2 | \$70 | \$13 | \$0 | \$0 | \$83 |

| *=========== | | | | | ====== | ======= |
|-----------------------|---------------|--------------------|------------------|-------------|---------------------|--------------------|
| Line # | Descripti | on | | | | |
| | Manhours | Matl | Labor | Equipment | Sub | Total |
| | | ======= | | | ====== | ======== |
| 1554512050 | HTG INFRA | RED ELEC | 6KW 20478 | BBTU | 6 00 | П- |
| Unit values Totals | | 334.67 \$2,008 | 44.47 \$267 | | 6.00 0.00 \$0 | |
| 1554512100 | HTG INFRA | RED ELEC | 13.5KW 46 | 5075.5BTU | 6 00 | 77 - |
| Unit values Totals | 3.20 19.20 | | 53.24 \$319 | | 6.00 0.00 \$0 | |
| 1554512150 | HTG INFRA | RED ELEC | 27KW 9215 | SIBTU | 20.00 | |
| Unit values Totals | | 879.31 \$34,293 | | 0.00 \$0 | | 945.86 \$36,888 |
| 1574205220 | ELECTRIC | THERMOSTAT | r w/ cover | AND WIRING | 51.00 | . |
| Unit values Totals | 1.00 51.00 | 74.93 \$3,821 | 20.81 \$1,061 | | | 95.74 \$4,862 |
| U15 MECHANICAL | 243 | \$42,853 | \$4,242 | \$0 | \$0 | \$47,095 |

| | ====== | ======== | ======== | | | ========= |
|-----------------------|----------------|----------------------|--------------------|-----------------|-----------------------|-----------------|
| Line # | Descript | ion | | | | |
| | Manhours | | | quipment | | Total |
| | ======= | ======= | | ======= | | |
| 1611400600 | MINERAL | INSULATED (| CABLE 600V | 1 #4 | 3 50 | C.L.F. |
| Unit values Totals | 6.67 23.33 | 402.81 \$1,410 | 103.21 \$361 | 0.00 \$0 | 0.00 | 506.02 |
| 1611400800 | MINERAL | INSULATED (| CABLE 600V | 1 #2 | 7 00 | C.L.F. |
| Unit values Totals | 7.27 50.91 | 537.08 \$3,760 | 112.80 \$790 | 0.00 \$0 | 0.00 \$0 | 649.88 |
| 1621100220 | OUTLET B | OXES STEEL | , 4" SQ, 2- | 1/8" DEEP, | | n - |
| Unit values Totals | 0.40 | 2.36 \$120 | 6.20 \$316 | 0.00 \$0 | 51.00 0.00 \$0 | 8.57 |
| 1621100250 | OUTLET B | OX STEEL 4 | " COVERS BLA | ANK | F7 00 | n - |
| Unit values Totals | 0.13 6.38 | 0.54 \$27 | 1.94 \$99 | 0.00 \$0 | 51.00 0.00 \$0 | 2.48 |
| 1631200100 | HEATING | SYSTEM POW | er / controi | L PANEL | 12.00 | Π- |
| Unit values Totals | 2.96 38.52 | | 45.97 \$598 | 0.00 \$0 | 13.00 0.00 \$0 | 366.69 |
| 1641600500 | TRANSFOR | MER OIL PAI | 15KV 480V | 3P1000KVA | 7 00 | D - |
| Unit values Totals | 76.92 76.92 | 17408.80 \$17,409 | 1184.40 \$1,184 | 225.60 \$226 | 1.00 0.00 \$0 | 18818.80 |
| 1671104800 | UNDERGRO | UND DUCT BA | ANK PVC TYPE | E EB 4 - 2' | | . |
| Unit values Totals | 0.13 39.90 | 1.48 \$444 | 2.07 \$621 | 0.00 \$0 | 300.00 0.00 \$0 | 3.55 \$1,065 |
| U16 ELECTRICAL | 257 | \$27,339 | \$3,969 | \$226 | \$0 | \$31,534 |

| ======================================= | ======= | ======= | | | | ======= |
|---|------------------------------|------------|----------|-----------|-----|------------------------------|
| Line # | Descript | ion | | | | |
| | Manhours | Matl | Labor | Equipment | Sub | Total |
| | ======= | =======: | ====== | ======= | | ======== |
| ESTIMATE TOTAL | 2411 | \$112,236 | \$48,302 | \$4,394 | \$0 | \$164,932 |
| SALES TAX MATL MARKUP | 0.00% | \$0 \$0 | | | | |
| LABOR MARKUP EQUIPT MARKUP SUB MARKUP | 0.00% 0.00% 0.00% | | \$0 | \$0 | \$0 | |
| TOTAL BEFORE C CONTINGENCY BOND | ONTINGENC 10.00% 0.00% | \$112,236 | \$48,302 | \$4,394 | \$0 | \$164,932 \$16,493 \$0 |
| PROFIT | 10.00% | | | | | \$16,493 |
| JOB TOTAL | | | | | | \$197,918 |

Estimate: BLDG 7937 Date: 28-Nov-94
Description: ELECTRIC INFRARED HEATING SYSTEM COST ESTIMATE
Project: LIMITED EEAP(HGR) Bid Date:

94013.04 FORT BRAGG, N.C Job #: Location: Sq. footage: 37842 City indx:Raleigh, NC

| | S | SUMMARY | | | | |
|--|---|---|--|---|--------------------------|--|
| | Manhours | Matl | Labor | Equipment | Sub | Total |
| ======================================= | ======== | ======= | ======= | ======================================= | ======= | |
| A09 ELECTRICAL U02 SITEWORK U03 CONCRETE U15 MECHANICAL U16 ELECTRICAL | 1127 782 2 243 257 | \$41,856 \$118 \$70 \$42,853 \$27,339 | \$24,703 \$15,375 \$13 \$4,242 \$3,969 | \$0 \$4,168 \$0 \$0 \$226 | \$0 \$0 \$0 \$0 | \$66,559 \$19,661 \$83 \$47,095 \$31,534 |
| TOTAL | 2411 | \$112,236 | \$48,302 | \$4,394 | \$0 | \$164,932 |
| SALES TAX MATL MARKUP LABOR MARKUP EQUIPT MARKUP SUB MARKUP | 0.00% 0.00% 0.00% 0.00% 0.00% | \$0 \$0 | \$0 | \$0 | \$0 | |
| TOTAL BEFORE CO CONTINGENCY BOND PROFIT | ONTINGENC 10.00% 0.00% 10.00% | \$112,236 | \$48,302 | \$4,394 | \$0 | \$164,932 \$16,493 \$0 \$16,493 |
| JOB TOTAL | | | | | | \$197,918 |

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ENERGY CONSERVATION INVESTMENT PROGRAM (ECIP)
                                                           LCCID FY95 (92)
    INSTALLATION & LOCATION: FORT BRAGG REGION NOS. 4 CENSUS: 3
    PROJECT NO. & TITLE: 94013.04 LES: ECO3 - ELECTRIC INFRARED HEAT
    FISCAL YEAR 95 DISCRETE PORTION NAME: ECO
                    12-05-94 ECONOMIC LIFE 20 YEARS PREPARED BY: G.B. LOFLIN
    ANALYSIS DATE:
    1. INVESTMENT
    A. CONSTRUCTION COST
                             $
                                  192848.
    B. SIOH
                                    9642.
                             S
    C. DESIGN COST
                                    8642.
    D. TOTAL COST (1A+1B+1C) $
                                  211132.
    E. SALVAGE VALUE OF EXISTING EQUIPMENT $
                                                    Ο.
    F. PUBLIC UTILITY COMPANY REBATE
    G. TOTAL INVESTMENT (1D - 1E - 1F)
                                                             211132.
    2. ENERGY SAVINGS (+) / COST (-)
    DATE OF NISTIR 85-3273-X USED FOR DISCOUNT FACTORS OCT 1994
               UNIT COST SAVINGS ANNUAL $ DISCOUNT $/ MWH(1) MWH/YR(2) SAVINGS(3) FACTOR(4)
                                                                   DISCOUNTED
       FUEL
                                                      FACTOR(4)
                                                                  SAVINGS (5)
       A. ELECT $ 34.95
B. DIST $ 19.18
                               -326.
                                             -11403.
                                                           15.08
                                                                      -171954.
                               2762.
                                              52974.
                                                                   $
                                                           18.57
                                                                       983724.
                                                 0.
        C. RESID $ .00
                               0.
                                                           21.02
                                                                            0.
                                  0.
       D. NAT G $ 13.44
                                                  0.
                                                          18.58
                                                                            0.
                                          $ 0.
$ 0.
$ -53211.
       E. COAL $ .00
F. PPG $ .00
                                 0.
                                                          16.83
                                                                            0.
                                  0.
                                                          17.38
                                                                            0.
       M. DEMAND SAVINGS
                                                           14.88
                                                                      -791780.
                                         $ -11640.
       N. TOTAL
                                                                       19990.
    3. NON ENERGY SAVINGS(+) / COST(-)
      A. ANNUAL RECURRING (+/-)
                                                                   $ 6454.
           (1) DISCOUNT FACTOR (TABLE A)
                                                       14.88
           (2) DISCOUNTED SAVING/COST (3A X 3A1)
                                                                        96039.
      B. NON RECURRING SAVINGS(+) / COSTS(-)
                                SAVINGS(+) YR
                                                  DISCNT
                                                             DISCOUNTED
                                  COST(-)
                                            OC
                   ITEM
                                                  FACTR
                                                              SAVINGS(+)/
                                     (1)
                                            (2)
                                                  (3)
                                                              COST(-)(4)
       d. TOTAL
                                $
                                       0.
                                                                     0.
      C. TOTAL NON ENERGY DISCOUNTED SAVINGS (+)/COST(-)(3A2+3Bd4)$ 96039.
   4. FIRST YEAR DOLLAR SAVINGS 2N3+3A+(3Bd1/(YRS ECONOMIC LIFE))$
   5. SIMPLE PAYBACK PERIOD (1G/4)
                                                                   -40.71 YEARS
   6. TOTAL NET DISCOUNTED SAVINGS (2N5+3C)
                                                                       116029.
   7. SAVINGS TO INVESTMENT RATIO
                                          (SIR) = (6 / 1G) =
                                                                       .55
       (IF < 1 PROJECT DOES NOT QUALIFY)
**** Project does not qualify for ECIP funding; 4,5,6 for information only.
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LIFE CYCLE COST ANALYSIS SUMMARY

8. ADJUSTED INTERNAL RATE OF RETURN (AIRR):

N/A

STUDY: 8944EC03

Estimate: BLDG 8944 Date: 28-Nov-94 Description: ELECTRIC INFRARED HEATING SYSTEM COST ESTIMATE LIMITED EEAP(HGR) Bid Date: Project: FORT BRAGG, N.C Job #: 94013.04 Location: Sq. footage: 38099 City indx:Raleigh, NC Description Manhours Matl Labor Equipment Sub ______ 0913100280 FEEDER INSTALLATION, INCLUDING CONDUIT AND WIRE, 200 AMPERES 0.31 9.45 2800.00 L.F. 0.00 16.16 Unit values 6.71 9.45 0.00 Totals 856.80 \$26,447 \$18,792 \$0 \$0 \$45,239 0914100360 SWITCHGEAR INST, INCL SWBD, PANELS & CIRC BKR, 1600 AMPERES 208.17 13519.60 1.00 EACH 0.00 Unit values 4568.40 0.00 18088.00 Totals 208.17 \$13,520 \$4,568 \$0 \$0 \$18,088 \$0 A09 ELECTRICAL 1065 \$39,967 \$23,360 \$0 \$63,327

| ======================================= | | | | ======== | ======= | ======== |
|---|----------------------------|---------------|-----------------|------------------------------|----------------------|------------------|
| Line # | Description | | | | | |
| | | | Labor | Equipment | Sub | Total |
| | | | | | | ======== |
| 0205541750 | PAVEMENT RE | | | | 40 00 | S Y |
| Unit values Totals | 0.10 3.80 | 0.00 \$0 | 1.73 \$69 | 2.50 \$100 | 0.00 | |
| 0205543200 | SITE REMOVA 4"DIAMETER | | | | | L.F. |
| Unit values Totals | 0.15 450.00 | 0.00 \$0 | 2.61 \$7,838 | 1.06 \$3,191 | 0.00 | 3.68 \$11,029 |
| 0207183600 | HVAC DEMO, M | ECH EQPI | HEAVY IT | EM | 2 00 | m |
| Unit values Totals | 14.55 29.09 | 0.00 \$0 | 314.87 \$630 | 0.00 \$0 | 0.00 \$0 | 314.87 \$630 |
| 0208400600 | REMOVE PIPE | INSULAT | CION UP TO | 4" DIAMETE | R PIPE 3000.00 | T D |
| Unit values Totals | 0.07 213.00 | 0.00 \$0 | 1.63 \$4,902 | 0.20 \$587 | 0.00 | 1.83 \$5,489 |
| 0208401000 Unit values Totals | DIAMETED DI | סב | | FITTING, UF 0.56 \$225 | 400 00 | En |
| | | | | | | \$2,063 |
| 0222540060 | CY TRAC/LDR | /B'HOE | | | 25.00 | |
| Unit values Totals | 0.08 2.00 | 0.00 \$0 | | 1.17 \$29 | | 2.64 \$66 |
| 0222541900 | TAMPING TRE | NCH B'FI | LL, VIBRA | ring plate, | ADD 25.00 | C V |
| Unit values Totals | 0.09 2.23 | 0.00 \$0 | 1.44 \$36 | 0.55 \$14 | 0.00 | 1.99 \$50 |
| 0222543020 | BACKFILL TR BUCKET, MIN | | E.LOADER, | WHEEL MTD. | | C V |
| Unit values Totals | 0.03 0.75 | 0.00 \$0 | 0.58 \$14 | | 25.00 0.00 \$0 | 1.06 \$26 |
| 0251040380 | ASPHALTIC COURSE, 2" | ONCRETE | PAVEMENT, | PAVING, WE | ARING 40.00 | c v |
| Unit values Totals | 0.02 0.60 | 2.96 \$118 | 0.27 \$11 | 0.25 \$10 | 0.00 | 3.48 \$139 |

| = : | = | == | == | = | = | = = | = = | = = | = = | = = | = = | = | = | = | = | = : | = = | = = | = = | = | = | = | = : | == | == | = = | = | = | = | = | = : | == | = = | == | = | = | = = | = = | == | = : | == | = | = | = = | = | == | == | = : | = = | = = | =: | = = | == | = | === | == | == | = = | == |
|-----|---|----|----|---|---|-----|-----|-----|-----|-----|-----|---|---|---|---|-----|-----|-----|-----|---|---|---|-----|----|----|-----|---|---|---|---|-----|----|-----|----|---|---|-----|-----|----|-----|----|---|---|-----|---|----|----|-----|-----|-----|----|-----|----|---|-----|----|----|-----|----|
| | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

| Line # | Description | on | | | | |
|-----------------------|--------------|--------------|--------------|-------------|----------------------|----------------------|
| | Manhours | Matl | Labor | Equipment | Sub | Total |
| ========== | | | | | ======: | |
| U02 SITEWORK | 782 | \$118 | \$15,375 | \$4,168 | \$0 | \$19,661 |
| 0331305010 | 6" THICK | SLAB FOR | NEW TRANS | SFORMER | | |
| Unit values Totals | 0.02 1.15 | 1.45 \$70 | 0.28 \$13 | 0.00 \$0 | 48.00 0.00 \$0 | S.F. 1.73 \$83 |
| U03 CONCRETE | 2 | \$70 | \$13 | \$0 | \$0 | \$83 |

| Line # | Descripti | on | | | | |
|-----------------------|---|--------------------|------------------|--------------|---------------------|---------------------------|
| | Manhours | Matl | Labor | Equipment | Sub | Total |
| | ======================================= | ====== | | | ====== | |
| 1554512050 | HTG INFRA | RED ELEC | 6KW 20478 | BBTU | F 00 | D- |
| Unit values Totals | | 334.67 \$1,673 | | | 5.00 0.00 \$0 | |
| 1554512100 | HTG INFRA | RED ELEC | 13.5KW 46 | 5075.5BTU | F 00 | n _ |
| Unit values Totals | 3.20 16.00 | | | 0.00 \$0 | 5.00 0.00 \$0 | |
| 1554512150 | HTG INFRA | RED ELEC | 27KW 9215 | SIBTU | 20.00 | _ |
| Unit values Totals | | 879.31 \$34,293 | | | | ъа. 945.86 \$36,888 |
| 1574205220 | ELECTRIC ' | THERMOSTAT | r w/ cover | R AND WIRING | 50.00 | _ |
| Unit values Totals | 1.00 | 74.93 \$3,746 | 20.81 \$1,041 | 0.00 \$0 | | Ea. 95.74 \$4,787 |
| U15 MECHANICAL | 236 | \$41,988 | \$4,124 | \$0 | \$0 | \$46,112 |

| Line # | Descript | ion | | | | |
|---|----------------|----------------------|-----------------|-----------------|-----------------------|-----------------------------|
| | Manhours | | | Equipment | | Total |
| ======================================= | ======= | ======== | | ======== | ====== | ======== |
| 1611400600 | MINERAL | INSULATED | CABLE 600 | V 1 #4 | 2 50 | |
| Unit values Totals | 6.67 23.33 | 402.81 \$1,410 | 103.21 \$361 | | 0.00 | C.L.F. 506.02 \$1,771 |
| 1611400800 | MINERAL | INSULATED | CABLE 600 | V 1 #2 | 7 00 | |
| Unit values Totals | | 537.08 \$3,760 | | 0.00 \$0 | 0.00 | C.L.F. 649.88 \$4,550 |
| 1621100220 | OUTLET B | OXES STEEL | , 4" SQ, 2 | -1/8" DEEP, | 1" 50.00 | E-0 |
| Unit values Totals | 0.40 | | 6.20 \$310 | 0.00 \$0 | 0.00 | 8.57 |
| 1621100250 | OUTLET B | OX STEEL 4 | " COVERS B | LANK | 50.00 | T-2 |
| Unit values Totals | 0.13 6.25 | | 1.94 \$97 | 0.00 \$0 | 0.00 | |
| 1631200100 | HEATING | SYSTEM POW | ER / CONTR | OL PANEL | 13.00 | T |
| Unit values Totals | 2.96 38.52 | 320.72 \$4,169 | 45.97 \$598 | 0.00 \$0 | 0.00 | 366.69 |
| 1641600500 | TRANSFOR | MER OIL PA | D 15KV 480 | V 3P1000KVA | 1.00 | Pa |
| Unit values Totals | 76.92 76.92 | 17408.80 \$17,409 | | 225.60 \$226 | 0.00 | 18818.80 \$18,819 |
| 1671104800 | UNDERGRO | UND DUCT B | ANK PVC TY | PE EB 4 - 2 | | · |
| Unit values Totals | 0.13 39.90 | 1.48 \$444 | 2.07 \$621 | 0.00 \$0 | 300.00 0.00 \$0 | 3.55 \$1,065 |
| U16 ELECTRICAL | 256 | \$27,337 | \$3,961 | \$226 | \$0 | \$31,524 |

| ********* | ========== | ======= | | ======== | | ======== |
|---|------------------------------|------------|----------|-----------|---------|------------------------------|
| Line # | Descript | ion | | | | |
| | Manhours | Matl | Labor | Equipment | Sub | Total |
| # = = = = = = = = = = = = = = = = = = = | :======: | | | | ======= | ======= |
| ESTIMATE TOTAL | 2341 | \$109,480 | \$46,833 | \$4,394 | \$0 | \$160,707 |
| SALES TAX MATL MARKUP LABOR MARKUP | 0.00% 0.00% 0.00% | \$0 \$0 | \$0 | | | |
| EQUIPT MARKUP SUB MARKUP | 0.00% | | ÇÜ | \$0 | \$0 | |
| TOTAL BEFORE C CONTINGENCY BOND | ONTINGENC 10.00% 0.00% | \$109,480 | \$46,833 | \$4,394 | \$0 | \$160,707 \$16,071 \$0 |
| PROFIT | 10.00% | | | | | \$16,071 |
| JOB TOTAL | | • | | | | \$192,848 |

JOB TOTAL

Estimate: BLDG 8944 Date: 28-Nov-94
Description: ELECTRIC INFRARED HEATING SYSTEM COST ESTIMATE
Project: LIMITED EEAP(HGR) Bid Date:
Location: FORT BRAGG, N. C Job #: 94013.04

Sq. footage: 38099 City indx:Raleigh, NC

SUMMARY Manhours Matl Labor Equipment Sub Total ______ A09 ELECTRICAL 1065 \$39,967 \$23,360 U02 SITEWORK 782 \$118 \$15,375 U03 CONCRETE 2 \$70 \$13 U15 MECHANICAL 236 \$41,988 \$4,124 U16 ELECTRICAL 256 \$27,337 \$3,961 \$23,360 \$0 \$0 \$63,327 \$15,375 \$4,168 \$0 \$19,661 \$13 \$0 \$0 \$83 \$4,124 \$0 \$0 \$46,112 \$226 \$0 \$31,524 TOTAL 2341 \$109,480 \$46,833 \$4,394 \$0 \$160,707 SALES TAX 0.00% \$0 MATL MARKUP 0.00% \$0 \$0 LABOR MARKUP 0.00% EQUIPT MARKUP \$0 0.00% SUB MARKUP \$0 0.00% TOTAL BEFORE CONTINGENC \$109,480 \$46,833 \$4,394 \$0 \$160,707 CONTINGENCY 10.00% \$16,071 BOND 0.00% \$0 PROFIT 10.00% \$16,071

\$192,848

LIFE CYCLE COST ANALYSIS SUMMARY STUDY: 9647ECO3
ENERGY CONSERVATION INVESTMENT PROGRAM (ECIP) LCCID FY95 (92)
INSTALLATION & LOCATION: FORT BRAGG REGION NOS. 4 CENSUS: 3 PROJECT NO. & TITLE: 94013.04 LES: ECO3 - ELECTRIC INFRARED HEAT FISCAL YEAR 95 DISCRETE PORTION NAME: ECO ANALYSIS DATE: 12-05-94 ECONOMIC LIFE 20 YEARS PREPARED BY: G.B. LOFLIN 1. INVESTMENT A. CONSTRUCTION COST \$ 214760.
B. SIOH \$ 10738.
C. DESIGN COST \$ 10738.
D. TOTAL COST (1A+1B+1C) \$ 236236. F. PUBLIC UTILITY COMPANY REBATE \$
G. TOTAL INVESTMENT (1D - 1E - 1F) E. SALVAGE VALUE OF EXISTING EQUIPMENT \$ 236236. 2. ENERGY SAVINGS (+) / COST (-) DATE OF NISTIR 85-3273-X USED FOR DISCOUNT FACTORS OCT 1994 UNIT COST SAVINGS ANNUAL \$ DISCOUNT DISCOUNTED \$/ MWH(1) MWH/YR(2) SAVINGS(3) FACTOR(4) SAVINGS(5) A. ELECT \$ 34.95
B. DIST \$ 19.18
C. RESID \$.00
D. NAT G \$ 13.44
E. COAL \$.00
F. PPG \$.00
M. DEMAND SAVINGS -300. \$ -10475.
1887. \$ 36195.
0. \$ 0.
0. \$ 0.
0. \$ 0.
0. \$ 0.
5 -47522.
1587. \$ -21802. 15.08 -157966. 18.57 672140. 0. 21.02 18.58 16.83 17.38 14.88 0. 0. \$ 0. \$ -707127. \$ -192953. N. TOTAL 3. NON ENERGY SAVINGS(+) / COST(-) A. ANNUAL RECURRING (+/-) 1232. (1) DISCOUNT FACTOR (TABLE A) 14.88 (2) DISCOUNTED SAVING/COST (3A X 3A1) \$ 18327. B. NON RECURRING SAVINGS(+) / COSTS(-) SAVINGS(+) YR DISCNT DISCOUNTED COST(-) OC FACTR SAVINGS(+)/ ITEM (2) (1) (3) COST(-)(4) d. TOTAL \$ 0. 0. C. TOTAL NON ENERGY DISCOUNTED SAVINGS(+)/COST(-)(3A2+3Bd4)\$ 18327. 4. FIRST YEAR DOLLAR SAVINGS 2N3+3A+(3Bd1/(YRS ECONOMIC LIFE))\$ -20571. 5. SIMPLE PAYBACK PERIOD (1G/4) -11.48 YEARS 6. TOTAL NET DISCOUNTED SAVINGS (2N5+3C) \$ -174626. (SIR) = (6 / 1G) =7. SAVINGS TO INVESTMENT RATIO (IF < 1 PROJECT DOES NOT QUALIFY) *** Project does not qualify for ECIP funding; 4,5,6 for information only.

8. ADJUSTED INTERNAL RATE OF RETURN (AIRR):

N/A

Estimate: BLDG 9647 Date: 28-Nov-94 Description: ELECTRIC INFRARED HEATING SYSTEM COST ESTIMATE Project: LIMITED EEAP(HGR) Bid Date: FORT BRAGG, N.C Job #: 94013.04 Location: Sq. footage: 31586 City indx:Raleigh, NC Description ______ Manhours Matl Labor Equipment Sub _______ 0913100280 FEEDER INSTALLATION, INCLUDING CONDUIT AND WIRE, 200 AMPERES 4000.00 L.F. Unit values 0.31 9.45 6.71 0.00 0.00 16.16 Totals 1224.00 \$37,781 \$26,846 \$0 \$0 \$64,627 0914100360 SWITCHGEAR INST, INCL SWBD, PANELS & CIRC BKR, 1600 AMPERES 1.00 EACH 4568.40 0.00 Unit values 208.17 13519.60 0.00 18088.00 208.17 \$13,520 Totals \$4,568 \$0 \$0 \$18,088 A09 ELECTRICAL 1433 \$51,301 \$31,414 \$0 \$0 \$82,715

| | | ======= | ======= | ======== | | |
|---|------------------------------|---------------|------------------|-----------------|------------------------|------------------------|
| Line # | Description | on | | | | |
| | Manhours | | Labor 1 | Equipment | Sub | Total |
| | ======= | ======= | ======= | | | |
| 0205541750 | PAVEMENT I | REMOVAL, 1 | BITUMINOUS | , 4" TO 6" | THICK 40.00 | S V |
| Unit values Totals | 0.10 3.80 | 0.00 \$0 | 1.73 \$69 | 2.50 \$100 | 0.00 | 4.23 \$169 |
| 0205543200 | SITE REMOV | | | | 4000 | I.F. |
| Unit values Totals | 0.15 600.00 | 0.00 | 2.61 \$10,450 | 1.06 \$4,255 | 0.00 | 3.68 \$14,705 |
| 0207183600 | HVAC DEMO | MECH EQP | T HEAVY IT | EΜ | | _ |
| Unit values Totals | 14.55 29.09 | 0.00 \$0 | 314.87 \$630 | 0.00 | 2.00 0.00 \$0 | 314.87 \$630 |
| 0208400600 REMOVE PIPE INSULATION UP TO 4" DIAMETER PIP | | | | | | |
| Unit values Totals | 0.07 284.00 | 0.00 \$0 | 1.63 \$6,536 | 0.20 | 4000.00 0.00 \$0 | 1.83 \$7,319 |
| 0208401000 | | | FROM PIPE 1 | FITTING, UE | | |
| Unit values Totals | DIAMETER F 0.20 100.00 | 0.00 \$0 | 4.60 \$2,298 | 0.56 \$281 | 500.00 0.00 \$0 | Ea. 5.16 \$2,579 |
| 0222540060 | | | | L'-4' DEEP, | | Q. V. |
| Unit values Totals | CY TRAC/LI 0.08 2.00 | 0.00 | 1.47 | 1.17 \$29 | | 2.64 \$66 |
| 0222541900 | TAMPING TR | RENCH B'F | ILL, VIBRA | TING PLATE, | | |
| Unit values Totals | 0.09 2.23 | 0.00 \$0 | 1.44 \$36 | 0.55 \$14 | 25.00 0.00 \$0 | 1.99 \$50 |
| 0222543020 | | | .E.LOADER, | WHEEL MTD. | | a |
| Unit values Totals | BUCKET, MI 0.03 0.75 | 0.00 \$0 | 0.58 \$14 | 0.48 \$12 | 25.00 0.00 \$0 | 1.06 \$26 |
| 0251040380 | | | PAVEMENT, | PAVING, WE | | G . W |
| Unit values Totals | COURSE, 2" 0.02 0.60 | 2.96 \$118 | 0.27 \$11 | 0.25 \$10 | 40.00 0.00 \$0 | 3.48 \$139 |

U03 CONCRETE

| Line # | Description | on | | | | |
|---|--------------|--------------|--------------|-------------|-------|--------------|
| | Manhours | Matl | Labor | Equipment | Sub | Total |
| ======================================= | ======== | ======= | | | | |
| U02 SITEWORK | 1023 | \$118 | \$20,081 | \$5,484 | \$0 | \$25,683 |
| 0331305010 | 6" THICK | SLAB FOR | NEW TRANS | SFORMER | 48.00 | SF |
| Unit values Totals | 0.02 1.15 | 1.45 \$70 | 0.28 \$13 | 0.00 \$0 | 0.00 | 1.73 \$83 |

2 \$70 \$13 \$0 \$0 \$83

| Line # | Descripti | on | | | | |
|-----------------------|---------------|--------------------|----------------|-------------|----------------------|------------------|
| | Manhours | Matl | Labor | Equipment | Sub | Total |
| | | | | | | |
| 1554512050 | HTG INFRA | RED ELEC | 6KW 20478 | BBTU | 7.00 | E o |
| Unit values Totals | 2.67 18.67 | 334.67 \$2,343 | 44.47 \$311 | | 0.00 | |
| 1554512100 | HTG INFRA | RED ELEC | 13.5KW 46 | 075.5BTU | 7 00 | To |
| Unit values Totals | 3.20 22.40 | 455.20 \$3,186 | 53.24 \$373 | 0.00 \$0 | 7.00 0.00 \$0 | 508.44 |
| 1554512150 | HTG INFRA | RED ELEC | 27KW 9215 | SIBTU | 22.00 | 77 1 - |
| Unit values Totals | | 879.31 \$29,017 | | 0.00 | 33.00 0.00 \$0 | 945.86 |
| 1574205220 | ELECTRIC ' | THERMOSTAT | W/ COVER | AND WIRING | 10.00 | _ |
| Unit values Totals | | 74.93 \$2,997 | 20.81 \$832 | 0.00 \$0 | 40.00 0.00 \$0 | 95.74 \$3,829 |
| U15 MECHANICAL | 214 | \$37,543 | \$3,712 | \$0 | \$0 | \$41,255 |

| Line # | Descripti | on | | | | |
|---|----------------|----------------------|--------------------|-----------------|-----------------------|-----------------------------|
| ======================================= | Manhours | Matl | | quipment | Sub | Total |
| ======================================= | | ======= | | | | ======== |
| 1611400600 | MINERAL I | NSULATED C | ABLE 600V | 1 #4 | 3 00 | C.L.F. |
| Unit values Totals | 6.67 20.00 | 402.81 \$1,208 | | 0.00 \$0 | 0.00 | 506.02 |
| 1611400800 | MINERAL I | NSULATED C | ABLE 600V | 1 #2 | <i>c</i> 00 | |
| Unit values Totals | 7.27 43.64 | 537.08 \$3,222 | 112.80 \$677 | 0.00 \$0 | 0.00 | C.L.F. 649.88 \$3,899 |
| 1621100220 | OUTLET BOX | XES STEEL, | 4" SQ, 2-1 | /8" DEEP, | 1" 40.00 | E. |
| Unit values Totals | 0.40 16.00 | 2.36 \$94 | 6.20 \$248 | | 0.00 | 8.57 \$342 |
| 1621100250 | OUTLET BO | X STEEL 4" | COVERS BLA | NK | 40.00 | m. |
| Unit values Totals | 0.13 5.00 | 0.54 \$21 | 1.94 \$78 | 0.00 \$0 | 0.00 | 2.48 \$99 |
| 1631200100 | HEATING S | YSTEM POWE | R / CONTROL | PANEL | 10.00 | To |
| Unit values Totals | 2.96 29.63 | | 45.97 \$460 | 0.00 \$0 | 10.00 0.00 \$0 | 366.69 \$3,667 |
| 1641600500 | TRANSFORM | ER OIL PAD | 15KV 480V | 3P1000KVA | 1 00 | TD - |
| Unit values Totals | 76.92 76.92 | 17408.80 \$17,409 | 1184.40 \$1,184 | 225.60 \$226 | 1.00 0.00 \$0 | 18818.80 \$18,819 |
| 1671104800 | UNDERGROUI | ND DUCT BA | NK PVC TYPE | EB 4 - 2' | | |
| Unit values Totals | 0.13 33.25 | 1.48 \$370 | 2.07 \$517 | 0.00 \$0 | 250.00 0.00 \$0 | 3.55 \$887 |
| U16 ELECTRICAL | 225 | \$25,531 | \$3,474 | \$226 | \$0 | \$29,231 |

| ======================================= | | | | ======= | ======== | ======== | : |
|---|-------------------------|------------|-----------|-----------|----------|-----------------------|---|
| Line # | Descript | ion | | | | | |
| | Manhours | Matl | Labor | Equipment | Sub | Total | |
| | | | | | | | |
| ESTIMATE TOTAL | 2897 | \$114,563 | \$58,694 | \$5,710 | \$0 | \$178,967 | |
| SALES TAX MATL MARKUP | 0.00% | \$0 \$0 | 60 | | | | |
| LABOR MARKUP EQUIPT MARKUP SUB MARKUP | 0.00% 0.00% 0.00% | | \$0 | \$0 | \$0 | | |
| CONTINGENCY | ONTINGENC 10.00% | \$114,563 | \$58,694 | \$5,710 | \$0 | \$178,967 \$17,897 | |
| BOND PROFIT | 0.00% 10.00% | | | | | \$0 \$17,897 | |
| JOB TOTAL | | | | | | \$214,760 | |

Estimate: BLDG 9647 Date: 28-Nov-94 Description: ELECTRIC INFRARED HEATING SYSTEM COST ESTIMATE
Project: LIMITED EEAP(HGR) Bid Date:
Location: FORT BRAGG, N.C Job #: 94013.04

JOB TOTAL

Sq. footage: 31586 City indx:Raleigh, NC

| SUMMARY | | | | | | ========= |
|--|---|---|--|---------------------------------------|---------------------------------|--|
| | Manhours | Matl | Labor | Equipment | Sub | Total |
| | | ======= | | ======= | | |
| A09 ELECTRICAL U02 SITEWORK U03 CONCRETE U15 MECHANICAL U16 ELECTRICAL | 1433 1023 2 214 225 | \$51,301 \$118 \$70 \$37,543 \$25,531 | \$31,414 \$20,081 \$13 \$3,712 \$3,474 | \$0 \$5,484 \$0 \$0 \$226 | \$0 \$0 \$0 \$0 \$0 | \$82,715 \$25,683 \$83 \$41,255 \$29,231 |
| TOTAL | 2897 | \$114,563 | \$58,694 | \$5,710 | \$0 | \$178,967 |
| SALES TAX MATL MARKUP LABOR MARKUP EQUIPT MARKUP SUB MARKUP | 0.00% 0.00% 0.00% 0.00% 0.00% | \$0 \$0 | \$0 | \$0 | \$0 | |
| TOTAL BEFORE COCONTINGENCY BOND PROFIT | ONTINGENC 10.00% 0.00% 10.00% | \$114,563 | \$58,694 | \$5,710 | \$0 | \$178,967 \$17,897 \$0 \$17,897 |

\$214,760

10 ECO - 4 LIFE CYCLE COST ANALYSES

LIMITED ENERGY STUDY OF HANGAR FACILITIES AT SIMMONS ARMY AIRFIELD, FT. BRAGG, NC

This section contains the life-cycle cost analyses and construction cost estimates for ECO-4: HVAC Renovations. The analyses and estimates are sorted by building number.

LCCA AND COST ESTIMATE: (sorted by building)

| 2936 | 10-3 |
|------|-----------|
| 3262 | 10-11 |
| 3354 | 10-19 |
| 3637 | 10-29 |
| 3642 | 10-38 |
| 3962 | 10-47 |
| 4137 | 10-56 |
| 4242 | 10-65 |

LCCA ECO-4
All Buildings

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LIFE CYCLE COST ANALYSIS SUMMARY STUDY: ECO4TOTL ENERGY CONSERVATION INVESTMENT PROGRAM (ECIP) LCCID FY95 (92)
  INSTALLATION & LOCATION: FORT BRAGG REGION NOS. 4 CENSUS: 3
  PROJECT NO. & TITLE: 94013.04 LES: ECO4 - TOTAL ALL BUILDINGS
  FISCAL YEAR 95 DISCRETE PORTION NAME: ECO
  ANALYSIS DATE: 12-13-94 ECONOMIC LIFE 20 YEARS PREPARED BY: G.B. LOFLIN
  1. INVESTMENT
  A. CONSTRUCTION COST $
                                  798044.
 B. SIOH $ 39902.
C. DESIGN COST $ 39902.
D. TOTAL COST (1A+1B+1C) $ 877848.
  E. SALVAGE VALUE OF EXISTING EQUIPMENT $
                                                       0.
 F. PUBLIC UTILITY COMPANY REBATE
G. TOTAL INVESTMENT (1D - 1E - 1F)
                                                       0.
                                                                 877848.
  2. ENERGY SAVINGS (+) / COST (-)
 DATE OF NISTIR 85-3273-X USED FOR DISCOUNT FACTORS OCT 1994
               UNIT COST SAVINGS ANNUAL $ DISCOUNTED $/ MWH(1) MWH/YR(2) SAVINGS(3) FACTOR(4) SAVINGS(5)
      FUEL
                              -51. $ -1775. 15.08

1202. $ 23052. 18.57

0. $ 0. 21.02

0. $ 0. 18.58

0. $ 0. 16.83

0. $ 0. 17.38

$ 4440. 14.88

1151. $ 25717.
      A. ELECT $ 34.95
                                                                             -26769.
      B. DIST $ 19.18
C. RESID $ .00
D. NAT G $ 13.44
                                                                             428080.
                                                                              0.
                                                                                   0.
      E. COAL $ .00
F. PPG $ .00
                                                                                   0.
                                                                            66067.
                                                                                   0.
      M. DEMAND SAVINGS
      N. TOTAL
                                                                           467379.
 3. NON ENERGY SAVINGS (+) / COST (-)
     A. ANNUAL RECURRING (+/-)
                                                            14.88
                                                                             20402.
         (1) DISCOUNT FACTOR (TABLE A)
          (2) DISCOUNTED SAVING/COST (3A X 3A1)
                                                                             303582.
     B. NON RECURRING SAVINGS(+) / COSTS(-)
                                 SAVINGS(+) YR DISCNT
COST(-) OC FACTR
                                                                 DISCOUNTED
                                   COST(-) OC (1) (2)
                                                                 SAVINGS(+)/
                                                                 COST(-)(4)
                                                     (3)
      d. TOTAL
                                 $ 0.
     C. TOTAL NON ENERGY DISCOUNTED SAVINGS(+)/COST(-)(3A2+3Bd4)$ 303582.
 4. FIRST YEAR DOLLAR SAVINGS 2N3+3A+(3Bd1/(YRS ECONOMIC LIFE))$ 46119.
 5. SIMPLE PAYBACK PERIOD (1G/4)
                                                                         19.03 YEA
 6. TOTAL NET DISCOUNTED SAVINGS (2N5+3C)
                                                                        $ 770961.
 7. SAVINGS TO INVESTMENT RATIO
                                             (SIR) = (6 / 1G) =
     (IF < 1 PROJECT DOES NOT QUALIFY)
** Project does not qualify for ECIP funding; 4,5,6 for information only.
 8. ADJUSTED INTERNAL RATE OF RETURN (AIRR):
                                                                         N/A
```

LCCA & COST ESTIMATE (sorted by building)

LIFE CYCLE COST ANALYSIS SUMMARY STUDY: 2936EC04 LCCID FY95 (92) ENERGY CONSERVATION INVESTMENT PROGRAM (ECIP) INSTALLATION & LOCATION: FORT BRAGG REGION NOS. 4 CENSUS: 3 PROJECT NO. & TITLE: 94013.04 LES: ECO4 - HVAC RENOVATIONS FISCAL YEAR 95 DISCRETE PORTION NAME: ECO ANALYSIS DATE: 12-12-94 ECONOMIC LIFE 20 YEARS PREPARED BY: G.B. LOFLIN 1. INVESTMENT A. CONSTRUCTION COST \$ 111823.

B. SIOH \$ 5591.

C. DESIGN COST \$ 5591.

D. TOTAL COST (1A+1B+1C) \$ 123005. E. SALVAGE VALUE OF EXISTING EQUIPMENT \$ 0. F. PUBLIC UTILITY COMPANY REBATE Ο. Ś G. TOTAL INVESTMENT (1D - 1E - 1F) 123005. 2. ENERGY SAVINGS (+) / COST (-) DATE OF NISTIR 85-3273-X USED FOR DISCOUNT FACTORS OCT 1994 UNIT COST SAVINGS ANNUAL \$ DISCOUNT DISCOUNTED \$/ MWH(1) MWH/YR(2) SAVINGS(3) FACTOR(4) SAVINGS(5) FUEL FAC: ...

15.08 \$ 45/2: ...
18.57 \$ 392.
21.02 \$ 0.
18.58 \$ 0.
16.83 \$ 0.
17.38 \$ 0.
14.88 \$ 8258.
\$ 54371.

 87.
 \$ 3032.

 1.
 \$ 21.

 0.
 \$ 0.

 0.
 \$ 0.

 0.
 \$ 0.

 0.
 \$ 555.

 88.
 \$ 3608.

 A. ELECT \$ 34.95 B. DIST \$ 19.18 C. RESID \$.00 D. NAT G \$ 13.44 E. COAL \$.00 F. PPG \$.00 M. DEMAND SAVINGS N. TOTAL 3. NON ENERGY SAVINGS (+) / COST (-) \$ 2374. A. ANNUAL RECURRING (+/-) (1) DISCOUNT FACTOR (TABLE A) 14.88 (2) DISCOUNTED SAVING/COST (3A X 3A1) \$ 35319. B. NON RECURRING SAVINGS(+) / COSTS(-) SAVINGS(+) YR DISCNT COST(-) OC FACTR (1) (2) (3) DISCOUNTED ITEM SAVINGS(+)/ COST(-)(4)d. TOTAL \$ 0. 0. C. TOTAL NON ENERGY DISCOUNTED SAVINGS(+)/COST(-)(3A2+3Bd4)\$ 35319. 4. FIRST YEAR DOLLAR SAVINGS 2N3+3A+(3Bd1/(YRS ECONOMIC LIFE))\$ 5. SIMPLE PAYBACK PERIOD (1G/4) 20.56 YEARS 6. TOTAL NET DISCOUNTED SAVINGS (2N5+3C) \$ 89690. 7. SAVINGS TO INVESTMENT RATIO (SIR) = (6 / 1G) =.73 (IF < 1 PROJECT DOES NOT QUALIFY) **** Project does not qualify for ECIP funding; 4,5,6 for information only.

8. ADJUSTED INTERNAL RATE OF RETURN (AIRR):

N/A

______ FEEDER INSTALLATION, INCLUDING CONDUIT AND 0913100280 WIRE, 200 AMPERES 0.31 9.45 300.00 L.F. 9.45 6.71 0.00 \$2,834 \$2,013 \$0 Unit values 16.16 0.00 Totals 91.80 \$0 \$4,847 \$4,847 A09 ELECTRICAL 92 \$2,834 \$2,013 \$0 \$0

| Line # | Descriptio | ======= n | | ======= | | |
|-----------------------|-----------------|--------------|-------------------|---------------|------------------|-------------------|
| | Manhours | | Labor E | | | Total |
| =========== | | ====== | | | | |
| 0205543200 | SITE REMOV | | PIPE, WELDE | D CONNECTI | ON, 200.00 | T. F |
| Unit values Totals | 0.15 30.00 | 0.00 \$0 | 2.61 \$523 | 1.06 \$213 | 0.00 | 3.68 \$736 |
| 0207181240 | HVAC DEMO, | DUCTWORK | K, 10"HI X | 24" WIDE | 50.00 | T. ਵਾ |
| Unit values Totals | 0.07 3.65 | 0.00 \$0 | 1.17 \$59 | | 0.00 | 1.17 |
| 0207183600 | HVAC DEMO, | MECH EQPT | HEAVY ITE | M | 7.00 | Ton |
| Unit values Totals | 14.55 101.82 | 0.00 \$0 | 314.87 \$2,204 | | 0.00 | 314.87 \$2,204 |
| 0208400600 | REMOVE PIP | E INSULAT | TION UP TO | 4" DIAMETE | R PIPE 200.00 | T. E |
| Unit values Totals | 0.07 14.20 | | 1.63 \$327 | | 0.00 | 1.83 |
| 0208401000 | REMOVE INST | | ROM PIPE F | ITTING, UP | TO 4" 50.00 | Pa |
| Unit values Totals | 0.20 10.00 | 0.00 \$0 | 4.60 \$230 | 0.56 \$28 | 0.00 | |
| 0222541900 | TAMPING TR | ENCH B'FI | LL, VIBRAT | ING PLATE, | ADD 4.50 | CV |
| Unit values Totals | 0.09 0.40 | 0.00 \$0 | 1.44 \$6 | 0.55 \$2 | 0.00 | |
| 0222582800 | TRENCH EXC | VTNG 40HF | CHNTRNCHR | &BKFL 12"W | 24"D 60.00 | ים ד |
| Unit values Totals | 0.01 0.60 | 0.00 \$0 | 0.20 \$12 | 0.20 \$12 | 0.00 | 0.39 \$24 |
| 0260120200 | BEDDING, FOR | OR PIPE I | N TRENCH S. | AND, DEAD | OR 1.50 | CV |
| Unit values Totals | 0.16 0.24 | 3.79 \$6 | 2.79 \$4 | 1.13 | 0.00 | 7.71 |
| 0260120500 | BEDDING, P | LACING IN | TRENCH | | 1.50 | C V |
| Unit values Totals | 0.09 0.13 | 0.00 \$0 | 1.44 \$2 | 0.55 \$1 | 0.00 | 1.99 |

| Line # | Description | 1 | | | | |
|---|----------------------------------|--------------------------|----------------------------------|----------------------------------|------------------------|-------------------------|
| ======================================= | Manhours | Matl | Labor | Equipment | Sub | Total |
| U02 SITEWORK | | | | | | |
| 1517010620 Unit values | BLACK STEED 2-1/2" DI 0.32 | PIPE, W/CPLGS 6.64 | SCHEDULE 4 &HNGRS 10' 4.93 | 0, THREADED OC 0.00 \$0 | 100.00 | L.F. |
| Totals 1556517150 | | | | | \$0 | \$1,157 |
| Unit values Totals | 0.09 | | | | 1000.00 0.00 \$0 | L.F. 2.95 \$2,949 |
| 1556519680 | PIPE CVR UP | RTHAN UL' | TV ELL 1.5 | W 1"IPS | 70.00 | n - |
| Unit values Totals | 0.17 11.76 | 6.49 \$455 | 2.47 \$173 | 0.00 \$0 | 70.00 0.00 \$0 | 8.96 \$628 |
| 1556519840 | PIPE CVR U | RETH UV ' | TEE/VLV 1" | W 1"IPS | 30.00 | E- |
| Unit values Totals | 0.24 7.26 | | | | 0.00 | 11.33 \$340 |
| 1571801160 | ROOF TOP A | C SINGL | E ZONE 10 | TON | 1.00 | Eo |
| Unit values Totals | 52.17 8 52.17 | 3016.98 \$8,017 | 831.88 \$832 | 0.00 \$0 | 0.00 | 8848.85 \$8,849 |
| 1571801170 | ROOF TOP A | C SINGL | E ZONE 12. | 5 TON | 2.00 | E-1 |
| Unit values Totals | 63.16 9 126.32 \$ | 0140.85 518,282 | 1013.38 \$2,027 | 0.00 \$0 | 0.00 | 10154.23 \$20,309 |
| 1571801180 | ROOFTOP AC | SINGLE 2 | ZONE 15 TO | N | 1.00 | T a |
| Unit values Totals | 77.42 10 77.42 \$ | | | 0.00 \$0 | 0.00 | 11829.65 \$11,829 |
| 1571900536 | WATER CHILI | ER RECI | PROCATING A | AIR COOLED | 55 TON 1.00 | T-3 |
| Unit values Totals | 177.00 23 177.00 \$ | | | | 0.00 | |
| 1572014520 | | | COP TUBE A | L FIN 1ROW | 4 00 | T.o. |
| Unit values Totals | X 8FIN 12" 1.32 5.28 | 279.72 \$1,119 | 20.27 \$81 | 0.00 \$0 | 4.00 0.00 \$0 | |
| 1574807504 | AC&V VARI V | 'LM MODUI | LATING MOTO | ORIZED DMP | 8X6 20.00 | Ea. |

| 05-Dec-94 | | MeansDa | ata for Lot | us | | Page 4 |
|-----------------------|---------------|-------------------|----------------|-------------|----------------------|-------------------------|
| Unit values Totals | 0.53 10.66 | 108.89 \$2,178 | 8.83 \$177 | 0.00 | 0.00 | 117.72 \$2,355 |
| 1574807510 | AC&V VARI | VLM MODULA | ATING MOTOR | IZED DMP 1 | .0X10 29.00 | Fa |
| Unit values Totals | 0.62 17.84 | 112.89 \$3,274 | 10.19 \$296 | 0.00 \$0 | 0.00 | 123.08 \$3,570 |
| 1574807520 | AC&V VARI | VLM MODULA | ATING MOTOR | IZED DMP 1 | | D- |
| Unit values Totals | 0.67 6.67 | 114.89 \$1,149 | 11.04 \$110 | 0.00 \$0 | 10.00 0.00 \$0 | 125.93 \$1,259 |
| 1574807700 | VARI VLM | MODULATING | MOTORIZED ' | THERMST AD | _ | - |
| Unit values Totals | 1.00 59.00 | 29.47 \$1,739 | 16.64 \$982 | 0.00 \$0 | 59.00 0.00 \$0 | Ea. 46.11 \$2,721 |

| Line # | Description | | | | | |
|----------------|-------------|-----------|----------|-----------|------|---------------|
| | Manhours | Matl | Labor | Equipment | Sub | Total |
| | | | | | | |
| U15 MECHANICAL | 673 | \$72,825 | \$10,722 | \$0 | \$0 | \$83,547 |
| 1633600750 | SAFETY SW | NF GEN DU | TY 240V | 3P200AMP | | _ |
| Unit values | 6.15 | 185.20 | 95.32 | 0.00 | 4.00 | Ea. 280.52 |
| Totals | 24.62 | \$741 | \$381 | \$0 | \$0 | \$1,122 |
| U16 ELECTRICAL | 25 | \$741 | \$381 | \$0 | \$0 | \$1,122 |

JOB TOTAL

\$111,823

| ======= | ======= | | | | ======= | | |
|--|---|---|---|--|---|--|--|
| Description | | | | | | | |
| Manhours | Matl | Labor | Equipment | Sub | Total | | |
| | | | | | | | |
| 952 | \$76,406 | \$16,483 | \$297 | \$0 | \$93,186 | | |
| 0.00% 0.00% | \$0 \$0 | | | | | | |
| 0.00% 0.00% 0.00% | | \$0 | \$0 | \$0 | | | |
| ONTINGENC 10.00% 0.00% 10.00% | \$76,406 | \$16,483 | \$297 | \$0 | \$93,186 \$9,319 \$0 \$9,319 | | |
| | 952 0.00% 0.00% 0.00% 0.00% 0.00% 0.00% 0.00% | 952 \$76,406 0.00% \$0 0.00% \$0 0.00% \$0 0.00% 0.00% 0.00% 0.00% 0.00% 0.00% | Manhours Matl Labor 952 \$76,406 \$16,483 0.00% \$0 0.00% \$0 0.00% \$0 0.00% 0.00% 0.00% 0.00% 0.00% | Manhours Matl Labor Equipment 952 \$76,406 \$16,483 \$297 0.00% \$0 0.00% \$0 0.00% \$0 0.00% \$0 0.00% \$0 0.00% \$0 0.00% \$0 0.00% \$0 0.00% \$0 0.00% \$0 0.00% \$0 0.00% \$0 0.00% \$16,483 \$297 | Manhours Matl Labor Equipment Sub 952 \$76,406 \$16,483 \$297 \$0 0.00% \$0 0.00% \$0 0.00% \$0 0.00% \$0 0.00% \$0 0.00% \$0 0.00% \$0 0.00% \$0 0.00% \$0 0.00% \$0 0.00% \$0 0.00% \$0 0.00% \$0 | | |

Estimate: BLDG 2936 Date: 02-Dec-94
Description: RENOVATE HVAC SYSTEM COST ESTIMATE (Replace Existing HVAC Project: LIMITED EEAP(HGR) Bid Date: (EXCEPT Location: FORT BRAGG, N.C. Job #: 94013.04
Sq. footage: ******* City indx:Raleigh, NC

| SUMMARY | | | | | | |
|--|---|-------------------------------------|---|----------------------------|--------------------------|---|
| | Manhours | Matl | Labor | Equipment | Sub | Total |
| | ======================================= | | = = = = = = = = : | _ = = = = = = = = : | | ****** |
| A09 ELECTRICAL U02 SITEWORK U15 MECHANICAL U16 ELECTRICAL | 92 162 673 25 | \$2,834 \$6 \$72,825 \$741 | \$2,013 \$3,367 \$10,722 \$381 | \$0 \$297 \$0 \$0 | \$0 \$0 \$0 \$0 | \$4,847 \$3,670 \$83,547 \$1,122 |
| TOTAL | 952 | \$76,406 | \$16,483 | \$297 | \$0 | \$93,186 |
| SALES TAX MATL MARKUP LABOR MARKUP EQUIPT MARKUP SUB MARKUP | 0.00% 0.00% 0.00% 0.00% 0.00% | \$0 \$0 | \$0 | \$0 | \$0 | |
| TOTAL BEFORE CO CONTINGENCY BOND PROFIT | ONTINGENC 10.00% 0.00% 10.00% | \$76,406 | \$16,483 | \$297 | \$0 | \$93,186 \$9,319 \$0 \$9,319 |
| JOB TOTAL | | | | | | \$111,823 |

```
LIFE CYCLE COST ANALYSIS SUMMARY

ENERGY CONSERVATION INVESTMENT PROGRAM (ECIP)

INSTALLATION & LOCATION: FORT BRAGG REGION NOS. 4 CENSUS: 3
PROJECT NO. & TITLE: 94013.04 LES: ECO4 - HVAC RENOVATIONS
FISCAL YEAR 95 DISCRETE PORTION NAME: ECO
ANALYSIS DATE: 12-12-94 ECONOMIC LIFE 20 YEARS PREPARED BY: G.B. LOFLIN
1. INVESTMENT
A. CONSTRUCTION COST $
B. SIOH $
                                 231472.
                                 11574.
11574.
C. DESIGN COST $
D. TOTAL COST (1A+1B+1C) $
                                254620.
E. SALVAGE VALUE OF EXISTING EQUIPMENT $
                                                    0.
F. PUBLIC UTILITY COMPANY REBATE
                                                    Ο.
G. TOTAL INVESTMENT (1D - 1E - 1F)
                                                          $
                                                               254620.
2. ENERGY SAVINGS (+) / COST (-)
DATE OF NISTIR 85-3273-X USED FOR DISCOUNT FACTORS OCT 1994
           UNIT COST SAVINGS ANNUAL $ DISCOUNT DISCOUNTED $/ MWH(1) MWH/YR(2) SAVINGS(3) FACTOR(4) SAVINGS(5)
                                                                    DISCOUNTED
    FUEL
                             -65. $ -2279.
603. $ 11573.
0. $ 0.
0. $ 0.
0. $ 0.
0. $ 0.
5.555.
538. $ 9849.
    A. ELECT $ 34.95
B. DIST $ 19.18
                                                            15.08
                                                                          -34363.
                                                           18.57
                                                                          214915.
    C. RESID $ .00
D. NAT G $ 13.44
                                                                          0.
                                                           21.02
                                                                               0.
                                                           18.58
                                                          16.83
17.38
    E. COAL $ .00
F. PPG $ .00
                                                                               0.
                                                                              0.
    M. DEMAND SAVINGS
                                                            14.88
                                                                           8258.
    N. TOTAL
                                                                          188810.
3. NON ENERGY SAVINGS(+) / COST(-)
   A. ANNUAL RECURRING (+/-)
                                                                    $ 2586.
        (1) DISCOUNT FACTOR (TABLE A)
                                                        14.88
        (2) DISCOUNTED SAVING/COST (3A X 3A1)
                                                                           38479.
   B. NON RECURRING SAVINGS(+) / COSTS(-)
                               SAVINGS(+) YR
COST(-) OC
                                                              DISCOUNTED
                                                   DISCNT
                                 COST(-)
                 ITEM
                                                   FACTR
                                                               SAVINGS(+)/
                                     (1)
                                             (2)
                                                   (3)
                                                                COST(-)(4)
    d. TOTAL
                               $
                                     0.
                                                                       0.
   C. TOTAL NON ENERGY DISCOUNTED SAVINGS(+)/COST(-)(3A2+3Bd4)$ 38479.
4. FIRST YEAR DOLLAR SAVINGS 2N3+3A+(3Bd1/(YRS ECONOMIC LIFE))$
                                                                          12435.
5. SIMPLE PAYBACK PERIOD (1G/4)
                                                                       20.48 YEARS
                                                                     $ 227288.
6. TOTAL NET DISCOUNTED SAVINGS (2N5+3C)
                                          (SIR) = (6 / 1G) =
7. SAVINGS TO INVESTMENT RATIO
                                                                         .89
    (IF < 1 PROJECT DOES NOT QUALIFY)
8. ADJUSTED INTERNAL RATE OF RETURN (AIRR):
                                                                       2.42 %
```

Unit values

A09 ELECTRICAL 19

Totals

0.31

18.36

16.16

\$970

\$970

0.00

\$0

\$0

Estimate: BLDG 3262 Date: 02-Dec-94
Description: RENOVATE HVAC SYSTEM COST ESTIMATE (Fan Coil System Using Project: LIMITED EEAP(HGR) Bid Date:
Location: FORT BRAGG, N.C. Job #: 94013.04
Sq. footage: ******* City indx:Raleigh, NC

Line # Description

Manhours Matl Labor Equipment Sub Total

0913100280 FEEDER INSTALLATION, INCLUDING CONDUIT AND WIRE, 200 AMPERES 60.00 L.F.

\$567 \$403

6.71

\$403

9.45

\$567

0.00

\$0

\$0

| ======================================= | ======== | ======= | ======= | | ======: | |
|---|-----------------|-------------|-------------------|-----------------|-------------------|-----------------|
| Line # | Description | | | | | |
| | Manhours | Matl | Labor E | quipment | Sub | Total |
| ======================================= | ======== | | | | ======: | |
| 0205543200 | SITE REMOVA | R | · | | | L.F. |
| Unit values Totals | 0.15 375.00 | 0.00 \$0 | 2.61 \$6,531 | 1.06 \$2,659 | 0.00 \$0 | 3.68 \$9,190 |
| 0207181240 | HVAC DEMO, | DUCTWORK | , 10"HI X | 24" WIDE | 800.00 | ī. F |
| Unit values Totals | 0.07 58.40 | 0.00 \$0 | 1.17 \$940 | 0.00 \$0 | 0.00 | 1.17 \$940 |
| 0207182340 | HVAC DEMO, | FURNACE (| GAS/OIL >1 | 20 MBH | 1.00 | E a |
| Unit values Totals | 5.33 5.33 | 0.00 \$0 | 111.48 \$111 | 0.00 \$0 | 0.00 | 111.48 \$111 |
| 0207183600 | HVAC DEMO, | MECH EQPT | HEAVY ITE | M | 10.00 | Ton |
| Unit values Totals | 14.55 145.45 | 0.00 \$0 | 314.87 \$3,149 | 0.00 \$0 | 0.00 | |
| 0208400600 | REMOVE PIPE | E INSULAT: | ION UP TO | 4" DIAMETE | R PIPE 2000.00 | T. F |
| Unit values Totals | 0.07 142.00 | 0.00 \$0 | 1.63 \$3,268 | | 0.00 | 1.83 |
| 0208401000 | REMOVE INST | IPE | | · | 200.00 | Ea. |
| Unit values Totals | 0.20 40.00 | 0.00 \$0 | 4.60 \$919 | 0.56 \$112 | 0.00 | 5.16 \$1,031 |
| 0222541900 | TAMPING TRE | ENCH B'FII | LL, VIBRAT | ING PLATE, | ADD 4.50 | C V |
| Unit values Totals | 0.09 0.40 | 0.00 \$0 | 1.44 \$6 | 0.55 \$2 | | 1.99 |
| 0222582800 | TRENCH EXC | VTNG 40HP | CHNTRNCHR | &BKFL 12"W | 24"D 60.00 | т. г |
| Unit values Totals | 0.01 0.60 | 0.00 \$0 | | 0.20 \$12 | 0.00 | 0.39 |
| 0260120200 | BEDDING, FO | OR PIPE IN | N TRENCH S. | AND, DEAD | OR 1.50 | C V |
| Unit values Totals | 0.16 0.24 | 3.79 \$6 | 2.79 \$4 | 1.13 \$2 | 0.00 | 7.71 \$12 |
| 0260120500 | BEDDING, PI | LACING IN | TRENCH | | 1.50 | C V |
| Unit values | 0.09 | 0.00 | 1.44 | 0.55 | 0.00 | 1.99 |

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Totals 0.13 \$0 \$2 \$1 \$0 \$3

| Line # | Descripti | on | | | | |
|-------------------------------------|--------------------------|----------------------------|----------------------------|----------------------------|--------------------------------|-----------------------|
| | Manhours | Matl | Labor E | Equipment | Sub | Total |
| U02 SITEWORK | 768 | \$6 | \$14,942 | \$3,179 | \$0 | \$18,127 |
| 0331305010 Unit values Totals | 6" THICK 0.02 3.12 | REINFORCE 1.45 \$189 | D SLAB FOR 0.28 \$36 | R HVAC EQUI 0.00 \$0 | PMENT 130.00 0.00 \$0 | S.F. 1.73 \$225 |
| U03 CONCRETE | 4 | \$189 | \$36 | \$0 | \$0 | \$225 |

| | | | | .======= | | |
|-----------------------|-----------------------|----------------------|----------------------------------|-------------|----------------|--------------------|
| Line # | Descript | ion | | | | |
| | | Matl | Labor Eq | quipment | Sub | Total |
| | | ======= | ========= | :======: | ======: | |
| 1517010620 | BLACK ST | EEL PIPE, S | SCHEDULE 40, &HNGRS 10'00 | THREADED | , 3000.00 | L.F. |
| Unit values Totals | 0.32 960.00 | 6.64 \$19,930 | %HNGRS 10'00 4.93 \$14,792 | 0.00 \$0 | 0.00 \$0 | 11.57 \$34,722 |
| 1556517150 | PIPE CVR | FBGL 1.5" | THK ASJ 2-1/ | 2"IPS | 3000 00 | I. F |
| Unit values Totals | 0.09 267.00 | 1.65 \$4,945 | 1.30 \$3,902 | 0.00 \$0 | 0.00 | 2.95 \$8,847 |
| 1556519680 | | | | | 170.00 | |
| Unit values Totals | 0.17 28.56 | 6.49 \$1,104 | 2.47 \$420 | 0.00 \$0 | 0.00 | 8.96 \$1,524 |
| 1556519840 | PIPE CVR | URETH UV | TEE/VLV 1"W | 1"IPS | 80.00 | Pa |
| Unit values Totals | 0.24 19.36 | 7.79 \$623 | 3.54 \$283 | 0.00 \$0 | 0.00 | 11.33 \$906 |
| 1562408110 | | | | | 00 00 | T1 - |
| Unit values Totals | 0.73 58.16 | 23.48 \$1,878 | 12.40 \$992 | 0.00 \$0 | 0.00 | 35.88 \$2,870 |
| 1562450160 | HVAC MIX | ING VALVE 2 | 2" IPS | | 10.00 | Πa |
| Unit values Totals | 1.00 10.00 | 889.11 \$8,891 | 17.24 \$172 | 0.00 | 0.00 | 906.35 |
| 1571500110 | FAN COIL WTR 3/4 7 | AIR CONDIT | r. CABINET M | TD FLTRS (| CHILL | Ea |
| Unit values Totals | 2.29 297.18 | 649.35 \$84,416 | 35.09 \$4,562 | 0.00 \$0 | 0.00 | 684.44 \$88,978 |
| 1571900536 | WATER CHI | LLER RECIE | PROCATING AI | R COOLED 5 | 55 TON 1.00 | Pa |
| Unit values Totals | 177.00 177.00 | 23476.50 \$23,477 | 2904.00 \$2,904 | 0.00 \$0 | 0.00 | |
| U15 MECHANICAL | 1818 | \$145,264 | \$28,027 | \$0 | \$0 | \$173,291 |

| Line # | Description | | | | | | | | | |
|---|--------------|-----------------|---------------|-------------|---------------------|-----------------|--|--|--|--|
| | Manhours | Matl | Labor E | Equipment | Sub | Total | | | | |
| ======================================= | ======= | ======= | ======= | :======= | | | | | | |
| 1633600750 | SAFETY SW | NF GEN DU | TY 240V 3F | 200AMP | 1 00 | En. | | | | |
| Unit values Totals | 6.15 6.15 | 185.20 \$185 | 95.32 \$95 | 0.00 \$0 | 1.00 0.00 \$0 | 280.52 \$280 | | | | |
| U16 ELECTRICAL | 7 | \$185 | \$95 | \$0 | \$0 | \$280 | | | | |

| ======================================= | | ======= | ======= | ========= | ======== | ======== | = | |
|--|--|------------|----------|-----------|----------|--|---|--|
| Line # | Description | | | | | | | |
| | Manhours | Matl | Labor | Equipment | Sub | Total | _ | |
| | ====== | | | | | | = | |
| ESTIMATE TOTAL | 2616 | \$146,211 | \$43,503 | \$3,179 | \$0 | \$192,893 | | |
| SALES TAX MATL MARKUP LABOR MARKUP | 0.00% 0.00% 0.00% | \$0 \$0 | \$0 | | | | | |
| EQUIPT MARKUP SUB MARKUP | 0.00% | | ŞU | \$0 | \$0 | | | |
| TOTAL BEFORE CO CONTINGENCY BOND PROFIT | ONTINGENC 10.00% 0.00% 10.00% | \$146,211 | \$43,503 | \$3,179 | \$0 | \$192,893 \$19,289 \$0 \$19,289 | | |
| JOB TOTAL | | | | | | \$231,472 | | |

RENOVATE HVAC SYSTEM COST ESTIMATE (Fan Coil System Using Description:

Estimate: BLDG 3262 Date: 02-Dec-94

Project:

LIMITED EEAP(HGR) Bid Date:

JOB TOTAL

Location: FORT BRAGG, N.C. Job #: Sq. footage: ****** City in

94013.04 City indx:Raleigh, NC

SUMMARY Manhours Matl Labor Equipment Sub Total _______ \$567 \$403 19 \$0 \$0 A09 ELECTRICAL \$970 U02 SITEWORK 768 \$6 \$14,942 \$3,179 \$0 \$18,127 \$0 4 U03 CONCRETE \$189 \$36 \$0 \$225 U15 MECHANICAL 1818 \$145,264 \$28,027 \$0 \$0 \$173,291 U16 ELECTRICAL 7 \$185 \$95 \$0 \$0 \$280 \$0 \$192,893 TOTAL 2616 \$146,211 \$43,503 \$3,179 SALES TAX 0.00% \$0 MATL MARKUP 0.00% \$0 LABOR MARKUP 0.00% \$0 \$0 EQUIPT MARKUP 0.00% \$0 0.00% SUB MARKUP TOTAL BEFORE CONTINGENC \$146,211 \$43,503 \$3,179 \$0 \$192,893 CONTINGENCY 10.00% \$19,289 BOND 0.00% \$0 \$19,289 PROFIT 10.00%

\$231,472

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LIFE CYCLE COST ANALYSIS SUMMARY STUDY: 3354ECO4
ENERGY CONSERVATION INVESTMENT PROGRAM (ECIP) LCCID FY95 (92)
              LIFE CYCLE COST ANALYSIS SUMMARY
   INSTALLATION & LOCATION: FORT BRAGG REGION NOS. 4 CENSUS: 3
   PROJECT NO. & TITLE: 94013.04 LES: ECO4 - HVAC RENOVATIONS
   FISCAL YEAR 95 DISCRETE PORTION NAME: ECO
   ANALYSIS DATE: 12-12-94 ECONOMIC LIFE 20 YEARS PREPARED BY: G.B. LOFLIN
   1. INVESTMENT
                                    95345.
   A. CONSTRUCTION COST $
                                    4767.
   B. SIOH $ 4767.
C. DESIGN COST $ 4767.
D. TOTAL COST (1A+1B+1C) $ 104879.
   E. SALVAGE VALUE OF EXISTING EQUIPMENT $
   F. PUBLIC UTILITY COMPANY REBATE
G. TOTAL INVESTMENT (1D - 1E - 1F)
                                                       0.
                                                                  104879.
   2. ENERGY SAVINGS (+) / COST (-)
   DATE OF NISTIR 85-3273-X USED FOR DISCOUNT FACTORS OCT 1994
                 UNIT COST SAVINGS ANNUAL $ DISCOUNT DISCOUNTED $/ MWH(1) MWH/YR(2) SAVINGS(3) FACTOR(4) SAVINGS(5)
       FUEL
                                  63. $ 2192.

-75. $ -1440.

0. $ 0.

0. $ 0.

0. $ 0.

0. $ 0.

0. $ 0.

1. $ 555.

-12. $ 1308.
       A. ELECT $ 34.95
                                               2192.
                                                               15.08
                                                                             33062.
       B. DIST $ 19.18
                                                              18.57
                                                                             -26734.
       C. RESID $ .00
D. NAT G $ 13.44
                                                              21.02
18.58
                                                                              0.
                                                                                  0.
                                                             16.83
17.38
14.88
       E. COAL $ .00
F. PPG $ .00
                                                                                  0.
                                                                                  0.
       M. DEMAND SAVINGS
                                 -12.
                                                                              8258.
       N. TOTAL
                                                                              14586.
   3. NON ENERGY SAVINGS(+) / COST(-)
      A. ANNUAL RECURRING (+/-)
                                                                             4989.
                                                            14.88
           (1) DISCOUNT FACTOR (TABLE A)
           (2) DISCOUNTED SAVING/COST (3A X 3A1)
                                                                        $ 74234.
      B. NON RECURRING SAVINGS(+) / COSTS(-)
                                  SAVINGS(+) YR DISCNT
COST(-) OC FACTR
                                                                 DISCOUNTED
                                    COST(-) OC (1) (2)
                                                                 SAVINGS(+)/
                                                                 COST(-)(4)
                                                      (3)
       d. TOTAL
                                  $ 0.
                                                                          0.
      C. TOTAL NON ENERGY DISCOUNTED SAVINGS (+) / COST (-) (3A2+3Bd4)$ 74234.
  4. FIRST YEAR DOLLAR SAVINGS 2N3+3A+(3Bd1/(YRS ECONOMIC LIFE))$ 6297.
  5. SIMPLE PAYBACK PERIOD (1G/4)
                                                                          16.66 YEARS
  6. TOTAL NET DISCOUNTED SAVINGS (2N5+3C)
                                                                        $ 88820.
  7. SAVINGS TO INVESTMENT RATIO
                                             (SIR) = (6 / 1G) =
                                                                            .85
      (IF < 1 PROJECT DOES NOT QUALIFY)
*** Project does not qualify for ECIP funding; 4,5,6 for information only.
  8. ADJUSTED INTERNAL RATE OF RETURN (AIRR):
                                                                         N/A
```

Estimate: BLDG 3354 Date: 29-Nov-94
Description: RENOVATE HVAC SYSTEM COST ESTIMATE
Project: LIMITED EEAP(HGR) Bid Date:
Location: FORT BRAGG, N.C. Job #: 94013.04
Sq. footage: 19500 City indx:Raleigh, N

City indx:Raleigh, NC

Line # Description

| Manhours | Matl | Labor 1 | Equipment | Sub | Total |
|----------|---------------------------------|--|---|--|---|
| ======== | ======== | :======: | | ====== | |
| | | | | | |
| | | INCLUDII | NG CONDUIT | | T T |
| • | | 6 71 | 0 00 | | ъ.ғ. 16.16 |
| 18.36 | \$567 | \$403 | \$0 | \$0 | \$970 |
| | | | | | · |
| | FEEDER INS WIRE, 200 0.31 | FEEDER INSTALLATION, WIRE, 200 AMPERES 0.31 9.45 | FEEDER INSTALLATION, INCLUDING WIRE, 200 AMPERES 0.31 9.45 6.71 | FEEDER INSTALLATION, INCLUDING CONDUIT WIRE, 200 AMPERES 0.31 9.45 6.71 0.00 | FEEDER INSTALLATION, INCLUDING CONDUIT AND WIRE, 200 AMPERES 60.00 0.31 9.45 6.71 0.00 0.00 |

A09 ELECTRICAL 19 \$567 \$403 \$0 \$0 \$970

| | ======== | ======= | ======= | | ======= | ======== |
|-----------------------|--------------------|-------------|-----------------|-----------------|-----------------------|----------------------|
| Line # | Description | | | | | |
| | | Matl | | Equipment | | Total |
| | | ======: | ======== | *======= | ======= | ======== |
| 0205543200 | SITE REMO | | | DED CONNECT | | L.F. |
| Unit values Totals | 0.15 150.00 | 0.00 \$0 | 2.61 \$2,613 | 1.06 \$1,064 | 0.00 | |
| 0207183600 | HVAC DEMO | | | | | |
| Unit values Totals | 14.55 29.09 | 0.00 \$0 | 314.87 \$630 | 0.00 | | 314.87 |
| 0208400600 | REMOVE PI | PE INSULAT | TION UP TO | 4" DIAMET | | |
| Unit values Totals | 0.07 49.70 | 0.00 | 1.63 \$1,144 | | | |
| 0208401000 | REMOVE INS | | FROM PIPE | FITTING, U | | T.o. |
| Unit values Totals | 0.20 30.00 | 0.00 | 4.60 \$689 | 0.56 \$84 | 150.00 0.00 \$0 | 5.16 \$773 |
| 0222541900 | TAMPING T | RENCH B'F | LL, VIBRA | TING PLATE | | . |
| Unit values Totals | 0.09 0.40 | 0.00 \$0 | 1.44 \$6 | 0.55 \$2 | 0.00 | C.Y. 1.99 \$8 |
| 0222582800 | TRENCH EXC | CVTNG 40HE | CHNTRNCH | IR&BKFL 12" | | |
| Unit values Totals | 0.01 0.60 | 0.00 \$0 | | 0.20 | | 0.39 |
| 0260120200 | BEDDING, F BANK | OR PIPE I | N TRENCH | SAND, DEAD | | ~ |
| Unit values Totals | 0.16 0.24 | 3.79 \$6 | 2.79 \$4 | 1.13 | 0.00 \$0 | C.Y. 7.71 \$12 |
| 0260120500 | BEDDING, P | LACING IN | TRENCH | | | |
| Unit values Totals | 0.09 | 0.00 \$0 | 1.44 | 0.55 \$1 | 1.50 0.00 \$0 | 1.99 \$3 |
| U02 SITEWORK | 261 | \$6 | \$5,100 | \$1,302 | \$0 | \$6,408 |

| | | | ======= | ======== | ======= | ========= |
|---|--------------|---------------|--------------|-------------|-----------------|---------------|
| Line # | Description | on | | | | |
| | Manhours | Matl | Labor E | quipment | Sub | Total |
| ======================================= | ======= | | ======= | ======= | ======= | ======= |
| 0331305010 | 6" THICK | REINFORCED | SLAB FOR | HVAC EQUI | PMENT 130.00 | 4 2 |
| Unit values Totals | 0.02 3.12 | 1.45 \$189 | 0.28 \$36 | 0.00 \$0 | 0.00 | 1.73 \$225 |
| U03 CONCRETE | 4 | \$189 | \$36 | \$0 | \$0 | \$225 |

| ======================================= | ========= | ====== | ====== | | ======= | |
|---|------------------------------|----------------------|-----------------|-------------|-------------------|----------------------|
| Line # | Description | | | | | |
| ======================================= | Manhours M | atl | Labor | Equipment | Sub | Total |
| | | ====== | ====== | | | |
| 1517010620 | BLACK STEEL 2-1/2" DI W | PIPE, SC /CPLGS&H | HEDULE 4 | 0, THREADED | 1200.00 | L.F. |
| Unit values Totals | 0.32 384.00 \$ | 6.64 7,972 | 4.93 \$5,917 | 0.00 | 0.00 | 11.57 \$13,889 |
| 1556101280 | | | | | | Ea. |
| Unit values Totals | 48.00 173 48.00 \$1 | 82.60 7,383 | 771.38 \$771 | 0.00 \$0 | 0.00 | 18153.98 \$18,154 |
| 1556517150 | PIPE CVR FBG | L 1.5"TH | K ASJ 2- | 1/2"IPS | 1200 00 | T D |
| Unit values Totals | 0.09 106.80 \$3 | 1.65 1,978 | 1.30 \$1,561 | 0.00 \$0 | 0.00 | 2.95 \$3,539 |
| 1556519680 | | | | | | E a |
| Unit values Totals | 0.17 16.80 | 6.49 \$649 | 2.47 \$247 | 0.00 \$0 | 0.00 | 8.96 \$896 |
| 1556519840 | PIPE CVR URE | TH UV TE | E/VLV 1. | 5"W 2-1/2" | IPS 50.00 | Fo |
| Unit values Totals | 0.24 12.10 | 7.79 \$390 | 3.54 \$177 | 0.00 \$0 | 0.00 | 11.33 \$567 |
| 1562408110 | VALVE BUTTER | FLY SYST | EM BALAN | CING & SHUT | -OFF 2 " 25.00 | SIZE |
| Unit values Totals | 0.73 18.18 | 23.48 \$587 | 12.40 \$310 | 0.00 \$0 | 0.00 | 35.88 \$897 |
| 1562450160 | HVAC MIXING V | VALVE 2" | IPS | | 2.00 | T 2 |
| Unit values Totals | | 39.11 L,778 | 17.24 \$34 | 0.00 \$0 | 0.00 | 906.35 \$1,812 |
| 1562600390 | PRESSURE REG 2" SIZE | , HOT W | TR, THRD | ED IRON | 1.00 | <u> </u> |
| Unit values Totals | | 39.66 \$340 | 12.40 \$12 | 0.00 \$0 | 0.00 | 352.06 \$352 |
| 1562600990 | PRESSURE REG IRON 2" SIZE | PROCESS | STM WET | /SUPER THRD | ED 1.00 | Po. |
| Unit values Totals | | .9.58 \$420 | 12.40 \$12 | 0.00 \$0 | 0.00 | 431.98 \$432 |
| 1571500110 | FAN COIL AIR WTR 3/4 TON | CONDIT. | CABINET | MTD FLTRS | CHILL 25.00 | Fa |
| Unit values | | 9.35 | 35.09 | 0.00 | 0.00 | 684.44 |

30-Nov-94 MeansData for Lotus

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Totals 57.15 \$16,234 \$877 \$0 \$0 \$17,111 WATER CHILLER RECIPROCATING AIR COOLED 25 TON 1571900510 1.00 Ea. Unit values Totals 100.00 12287.70 1633.50 0.00 0.00 13921.20 \$12,288 100.00 \$1,634 \$0 \$0 \$13,922

| Line # | Description | | | | | | | |
|---|-------------|-----------|------------|-----------|--------|---------------|--|--|
| | Manhours | Matl | Labor | Equipment | Sub | Total | | |
| ======================================= | | ======= | ====== | ======== | ====== | ======== | | |
| U15 MECHANICAL | 747 | \$60,019 | \$11,552 | \$0 | \$0 | \$71,571 | | |
| 1633600750 | SAFETY SW | NF GEN DU | JTY 240V : | 3P200AMP | 7 00 | _ | | |
| Unit values | 6.15 | 185.20 | 95.32 | 0.00 | 1.00 | Ea. 280.52 | | |
| Totals | 6.15 | \$185 | \$95 | \$0 | \$0 | \$280 | | |
| | | | | | | | | |
| U16 ELECTRICAL | 7 | \$185 | \$95 | \$0 | \$0 | \$280 | | |

| | | ======= | ======= | ========= | ======== | |
|---|--|------------|----------|-----------|----------|---------------------------------------|
| Line # | Descripti | on | | | | |
| | Manhours | Matl | Labor | Equipment | Sub | Total |
| | | .======: | ====== | | | ======= |
| ESTIMATE TOTAL | 1038 | \$60,966 | \$17,186 | \$1,302 | \$0 | \$79,454 |
| SALES TAX MATL MARKUP | 0.00% | \$0 \$0 | | | | |
| LABOR MARKUP EQUIPT MARKUP SUB MARKUP | 0.00% 0.00% 0.00% | | \$0 | \$0 | \$0 | |
| TOTAL BEFORE C CONTINGENCY BOND PROFIT | ONTINGENC 10.00% 0.00% 10.00% | \$60,966 | \$17,186 | \$1,302 | \$0 | \$79,454 \$7,945 \$0 \$7,945 |
| JOB TOTAL | | | | | | \$95,345 |

Estimate: BLDG 3354 Date: 29-Nov-94
Description: RENOVATE HVAC SYSTEM COST ESTIMATE
Project: LIMITED EEAP(HGR) Bid Date:

Project: Location:

Location: FORT BRAGG, N.C. Job #: Sq. footage: 19500 City in

94013.04 City indx:Raleigh, NC

| SUMMARY | | | | | | |
|--|--|--|--|-------------------------------------|---------------------------|--|
| | Manhours | Matl | Labor | Equipment | Sub | Total |
| | | ======= | ======: | | ======= | ======= |
| A09 ELECTRICAL U02 SITEWORK U03 CONCRETE U15 MECHANICAL U16 ELECTRICAL | 19 261 4 747 7 | \$567 \$6 \$189 \$60,019 \$185 | \$403 \$5,100 \$36 \$11,552 \$95 | \$0 \$1,302 \$0 \$0 \$0 | 00000 \$\$\$\$\$ \$ | \$970 \$6,408 \$225 \$71,571 \$280 |
| TOTAL | 1038 | \$60,966 | \$17,186 | \$1,302 | \$0 | \$79,454 |
| SALES TAX MATL MARKUP LABOR MARKUP EQUIPT MARKUP | 0.00% 0.00% 0.00% 0.00% | \$0 \$0 | \$0 | \$0 | | |
| SUB MARKUP | 0.00% | | | | \$0 | |
| TOTAL BEFORE COCONTINGENCY BOND PROFIT | ONTINGENC 10.00% 0.00% 10.00% | \$60,966 | \$17,186 | \$1,302 | \$0 | \$79,454 \$7,945 \$0 \$7,945 |
| JOB TOTAL | | | | | | \$95,345 |

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LIFE CYCLE COST ANALYSIS SUMMARY

ENERGY CONSERVATION INVESTMENT PROGRAM (ECIP)

INSTALLATION & LOCATION: FORT BRAGG REGION NOS. 4 CENSUS: 3
PROJECT NO. & TITLE: 94013.04 LES: ECO4 - HVAC RENOVATIONS
FISCAL YEAR 95 DISCRETE PORTION NAME: ECO
ANALYSIS DATE: 12-12-94 ECONOMIC LIFE 20 YEARS PREPARED BY: G.B. LOFLIN
1. INVESTMENT
A. CONSTRUCTION COST $
                                  76979.
                                  3849.
B. SIOH $ 3849.
C. DESIGN COST $ 3849.
D. TOTAL COST (1A+1B+1C) $ 84677.
E. SALVAGE VALUE OF EXISTING EQUIPMENT $
                                                     Ο.
F. PUBLIC UTILITY COMPANY REBATE
                                                      0.
G. TOTAL INVESTMENT (1D - 1E - 1F)
                                                                84677.
2. ENERGY SAVINGS (+) / COST (-)
DATE OF NISTIR 85-3273-X USED FOR DISCOUNT FACTORS OCT 1994
             UNIT COST SAVINGS ANNUAL $ DISCOUNT DISCOUNTED $/MWH(1) MWH/YR(2) SAVINGS(3) FACTOR(4) SAVINGS(5)
    FUEL
                              -60.
128.
                                -60. $ -2111.

128. $ 2449.

0. $ 0.

0. $ 0.

0. $ 0.

0. $ 0.

67. $ 555.
    A. ELECT $ 34.95
                                                             15.08
                                                                           -31828.
                                                            18.57 $
21.02 $
18.58 $
16.83 $
17.38 $
    B. DIST $ 19.18
                                                                           45483.
    C. RESID $ .00
                               0.
                                                                             0.
    D. NAT G $ 13.44
                                                                                Ο.
    E. COAL $ .00
F. PPG $ .00
                                                                             0.
0.
                                                                           8258.
    M. DEMAND SAVINGS
                                                             14.88
    N. TOTAL
                                                                            21913.
3. NON ENERGY SAVINGS (+) / COST (-)
   A. ANNUAL RECURRING (+/-)
                                                                            100.
        (1) DISCOUNT FACTOR (TABLE A)
                                                           14.88
        (2) DISCOUNTED SAVING/COST (3A X 3A1)
                                                                             1488.
   B. NON RECURRING SAVINGS(+) / COSTS(-)
                               SAVINGS(+) YR DISCNT
COST(-) OC FACTR
(1) (2) (3)
                                                                DISCOUNTED
                 ITEM
                                                                 SAVINGS(+)/
                                                                COST(-)(4)
    d. TOTAL
                                $
                                       0.
                                                                        Ο.
   C. TOTAL NON ENERGY DISCOUNTED SAVINGS (+) /COST (-) (3A2+3Bd4)$ 1488.
4. FIRST YEAR DOLLAR SAVINGS 2N3+3A+(3Bd1/(YRS ECONOMIC LIFE))$
                                                                             994.
5. SIMPLE PAYBACK PERIOD (1G/4)
                                                                        85.22 YEARS
6. TOTAL NET DISCOUNTED SAVINGS (2N5+3C)
                                                                          23401.
7. SAVINGS TO INVESTMENT RATIO
                                           (SIR) = (6 / 1G) =
                                                                         .28
    (IF < 1 PROJECT DOES NOT QUALIFY)
8. ADJUSTED INTERNAL RATE OF RETURN (AIRR):
                                                                     -3.41 %
```

Estimate: BLDG 3637 Date: 29-Nov-94
Description: RENOVATE HVAC SYSTEM COST ESTIMATE
Project: LIMITED EEAP(HGR) Bid Date:
Location: FORT BRAGG, N.C. Job #: 94013.04
Sq. footage: 12000 City indx:Raleigh, NC

Line # Description ______ Manhours Matl Labor Equipment Sub Total 0913100280 FEEDER INSTALLATION, INCLUDING CONDUIT AND WIRE, 200 AMPERES 60.00 L.F. 6.71 \$403 Unit values 0.31 9.45 0.00 0.00 16.16 Totals 18.36 \$567 \$0 \$0 \$970

A09 FLECTRICAL 19 \$567 \$403 \$0 \$0 \$970

| | ======== | | | | ======= | ======== |
|---|--------------------|-------------|-----------------|-------------------------------|----------------------|----------------------|
| Line # | Description | on | | | | |
| | Manhours | | Labor | Equipment | Sub | Total |
| ======================================= | ======= | | | ========= | | ======== |
| 0205543200 | SITE REMOV | /AL,STEEL | PIPE, WELI | DED CONNECTI | ON, | L.F. |
| Unit values Totals | 0.15 105.00 | 0.00 \$0 | 2.61 \$1,829 | DED CONNECTI 1.06 \$745 | 0.00 | 3.68 |
| 0207183600 | HVAC DEMO | | | rem | 1.00 | m |
| Unit values Totals | 14.55 14.55 | 0.00 \$0 | 314.87 \$315 | 0.00 \$0 | 0.00 | 314.87 \$315 |
| 0208400600 | REMOVE PI | PE INSULAT | TION UP TO | 0 4" DIAMETE | R PIPE 500.00 | T 17 |
| Unit values Totals | 0.07 35.50 | 0.00 \$0 | | 0.20 \$98 | 0.00 | 1.83 |
| 0208401000 | REMOVE INS | מחדו | | FITTING, UP | 7.00.00 | Fo |
| Unit values Totals | 0.20 20.00 | 0.00 | 4.60 \$460 | 0.56 \$56 | 0.00 | 5.16 |
| 0222541900 | TAMPING TR | RENCH B'FI | LL, VIBRA | ATING PLATE, | | C.Y. |
| Unit values Totals | 0.09 0.40 | 0.00 \$0 | 1.44 \$6 | 0.55 \$2 | 0.00 \$0 | 1.99 |
| 0222582800 | TRENCH EXC | CVTNG 40HF | CHNTRNCH | IR&BKFL 12"W | | т та |
| Unit values Totals | 0.01 0.60 | | 0.20 \$12 | 0.20 \$12 | 60.00 0.00 \$0 | 0.39 |
| 0260120200 | BEDDING, F BANK | OR PIPE I | N TRENCH | SAND, DEAD | | C V |
| Unit values Totals | | 3.79 \$6 | 2.79 \$4 | 1.13 \$2 | 0.00 | C.Y. 7.71 \$12 |
| 0260120500 | BEDDING, F | LACING IN | TRENCH | | 1 50 | C V |
| Unit values Totals | 0.09 0.13 | 0.00 \$0 | 1.44 | 0.55 \$1 | 0.00 | C.Y. 1.99 \$3 |
| U02 SITEWORK | 177 | \$6 | \$3,445 | \$916 | \$0 | \$4,367 |

| ======================================= | | ======== | ======= | ======= | ======= | |
|---|--------------|---------------|--------------|-------------|---------|---------------|
| Line # | Description | on | | | | |
| | Manhours | Matl | Labor E | quipment | Sub | Total |
| ======================================= | | ======== | ======= | ======== | ====== | ======== |
| 0331305010 | 6" THICK | REINFORCED | SLAB FOR | HVAC EQUI | PMENT | Q F |
| Unit values Totals | 0.02 2.64 | 1.45 \$160 | 0.28 \$31 | 0.00 \$0 | 0.00 | 1.73 \$191 |
| U03 CONCRETE | 3 | \$160 | \$31 | \$0 | \$0 | \$191 |

| ***======== | ========= | | ======= | | ====== | ======== |
|-------------------------------------|---|---|---|-----------------------------------|-----------------------|-----------------------------|
| Line # | Description | on | | | | |
| | | | | Equipment | | |
| ***** | | | | | | ======== |
| 1517010620 Unit values Totals | BLACK STER 2-1/2" DI 0.32 288.00 | EL PIPE, SO E W/CPLGS&H 6.64 \$5.979 | CHEDULE 40 HNGRS 10'0 4.93 \$4.438 | O, THREADED, OC 0.00 \$0 | 900.00 | L.F. 11.57 \$10,417 |
| 1556101280 | | | | | | 420,12, |
| Unit values Totals | 15# CTM 1 | חבר משוומ כ | CDM | 0.00 | 1 00 | Ea. 18153.98 \$18,154 |
| 1556517150 | PIPE CVR E | FBGL 1.5"TH | HK ASJ 2-3 | 1/2"IPS | 000 00 | T 17 |
| Unit values Totals | 0.09 80.10 | 1.65 \$1,484 | 1.30 \$1,171 | 0.00 \$0 | 900.00 0.00 \$0 | 2.95 \$2,655 |
| 1556519680 | PIPE CVR (| JRTHAN ULT | / ELL 1.5V | N 2-1/2" IPS | 60.00 | P.o. |
| Unit values Totals | 0.17 10.08 | 6.49 \$390 | 2.47 \$148 | 0.00 \$0 | 0.00 | 8.96 |
| 1556519840 | PIPE CVR (| JRETH UV TE | EE/VLV 1.5 | 5"W 2-1/2" I | PS 40.00 | En |
| Unit values Totals | 0.24 9.68 | | | 0.00 \$0 | 0.00 | 11.33 |
| 1562408110 | VALVE BUTT | TERFLY SYST | TEM BALANC | CING & SHUT- | | " SIZE Ea. |
| Unit values Totals | | | | 0.00 \$0 | 0.00 | 35.88 |
| 1562450160 | HVAC MIXIN | IG VALVE 2" | IPS | | 2.00 | E a |
| Unit values Totals | 1.00 | 889.11 \$1,778 | 17.24 \$34 | 0.00 \$0 | 0.00 | 906.35 \$1,812 |
| 1562600390 | PRESSURE R | REG , HOT W | TR, THRDE | ED IRON | 1.00 | Fa |
| Unit values Totals | 0.73 0.73 | | 12.40 \$12 | 0.00 \$0 | 0.00 | 352.06 \$352 |
| 1562600990 | PRESSURE R | | STM WET/ | SUPER THRDEI | 1.00 | F a |
| Unit values Totals | | 419.58 \$420 | 12.40 \$12 | 0.00 \$0 | 0.00 | 431.98 \$432 |
| 1571500110 | FAN COIL A | | CABINET | MTD FLTRS CH | HILL 15.00 | Ea |
| Unit values | | 649.35 | 35.09 | 0.00 | | 684.44 |

12-Dec-94

MeansData for Lotus

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Totals

Totals

34.29 \$9,740 \$526 \$0 \$0 \$10,266

1571900510

WATER CHILLER RECIPROCATING AIR COOLED 15 TON

Unit values

100.00 11088.90 100.00 \$11,089

1633.50 \$1,634 0.00 \$0 1.00 Ea. 0.00 12722.40 \$0 \$12,723

| | | | | | ======: | |
|-----------------------|--------------|-----------------|---------------|-----------|---------------------|-----------------|
| Line # | Description | on | | | | |
| | Manhours | Matl | Labor | Equipment | Sub | Total |
| | | | | | | |
| U15 MECHANICAL | 585 | \$49,267 | \$9,074 | \$0 | \$0 | \$58,341 |
| 1633600750 | SAFETY SW | NF GEN DU | JTY 240V 3 | 3P200AMP | 7 00 | П. |
| Unit values Totals | 6.15 6.15 | 185.20 \$185 | 95.32 \$95 | 0.00 | 1.00 0.00 \$0 | 280.52 \$280 |

U16 ELECTRICAL 7 \$185 \$95 \$0 \$0 \$280

| | | | | | ======: | ======= | | | |
|--|--|------------|----------|---|---------|---------------------------------------|--|--|--|
| Line # | Descripti | on | | | | | | | |
| | Manhours | Matl | Labor | Equipment | Sub | Total | | | |
| | | | ====== | ======================================= | | ======= | | | |
| ESTIMATE TOTAL | 791 | \$50,185 | \$13,048 | \$916 | \$0 | \$64,149 | | | |
| SALES TAX MATL MARKUP | 0.00% 0.00% | \$0 \$0 | 4.0 | | | | | | |
| LABOR MARKUP EQUIPT MARKUP SUB MARKUP | 0.00% 0.00% 0.00% | | \$0 | \$0 | \$0 | | | | |
| TOTAL BEFORE CO CONTINGENCY BOND PROFIT | ONTINGENC 10.00% 0.00% 10.00% | \$50,185 | \$13,048 | \$916 | \$0 | \$64,149 \$6,415 \$0 \$6,415 | | | |
| JOB TOTAL | | | | | | \$76,979 | | | |

Date: 29-Nov-94

Estimate: BLDG 3637 Date: 29-Nov Description: RENOVATE HVAC SYSTEM COST ESTIMATE Project: LIMITED EEAP(HGR) Bid Date:

Project: Location:

94013.04

Location: FORT BRAGG, N.C. Job #: Sq. footage: 12000 City ind

City indx:Raleigh, NC

SUMMARY

| | S | UMMARY | | | | |
|--|--|--|---|-----------------------------------|---------------------------------|--|
| | Manhours | Matl | Labor | Equipment | Sub | Total |
| ========= | ======= | | ======: | | ======= | ======= |
| A09 ELECTRICAL U02 SITEWORK U03 CONCRETE U15 MECHANICAL U16 ELECTRICAL | 19 177 3 585 7 | \$567 \$6 \$160 \$49,267 \$185 | \$403 \$3,445 \$31 \$9,074 \$95 | \$0 \$916 \$0 \$0 \$0 | \$0 \$0 \$0 \$0 \$0 | \$970 \$4,367 \$191 \$58,341 \$280 |
| TOTAL | 791 | \$50,185 | \$13,048 | \$916 | \$0 | \$64,149 |
| SALES TAX MATL MARKUP LABOR MARKUP EQUIPT MARKUP | 0.00% 0.00% 0.00% 0.00% | \$0 \$0 | \$0 | \$0 | | |
| SUB MARKUP | 0.00% | | | | \$0 | |
| TOTAL BEFORE CO CONTINGENCY BOND PROFIT | ONTINGENC 10.00% 0.00% 10.00% | \$50,185 | \$13,048 | \$916 | \$0 | \$64,149 \$6,415 \$0 \$6,415 |
| JOB TOTAL | | | | | | \$76,979 |

```
LIFE CYCLE COST ANALYSIS SUMMARY
                                                              STUDY: 3642ECO4
         ENERGY CONSERVATION INVESTMENT PROGRAM (ECIP)
                                                              LCCID FY95 (92)
    INSTALLATION & LOCATION: FORT BRAGG REGION NOS. 4 CENSUS: 3
    PROJECT NO. & TITLE: 94013.04 LES: ECO4 - HVAC RENOVATIONS
    FISCAL YEAR 95 DISCRETE PORTION NAME: ECO
    ANALYSIS DATE:
                     12-12-94 ECONOMIC LIFE 20 YEARS PREPARED BY: G.B. LOFLIN
    1. INVESTMENT
    A. CONSTRUCTION COST $
                                   95345.
    B. SIOH $ 4767.
C. DESIGN COST $ 4767.
D. TOTAL COST (1A+1B+1C) $ 104879.
                                    4767.
    E. SALVAGE VALUE OF EXISTING EQUIPMENT $
                                                     0.
    F. PUBLIC UTILITY COMPANY REBATE
                                                      Ο.
    G. TOTAL INVESTMENT (1D - 1E - 1F)
                                                           Ś
                                                               104879.
    2. ENERGY SAVINGS (+) / COST (-)
    DATE OF NISTIR 85-3273-X USED FOR DISCOUNT FACTORS OCT 1994
                UNIT COST SAVINGS ANNUAL $ DISCOUNT DISCOUNTED $/MWH(1) MWH/YR(2) SAVINGS(3) FACTOR(4) SAVINGS(5)
        FUEL
                                 50. $ 1730.
-62. $ -1198.
0. $ 0.
0. $ 0.
0. $ 0.
0. $ 0.
-13. $ 1087.
                                 50.
-62.
        A. ELECT $ 34.95
                                                             15.08
                                                                          26089.
        B. DIST $ 19.18
C. RESID $ .00
D. NAT G $ 13.44
                                                            18.57
                                                                          -22247.
                                                                               0.
                                                            21.02
                                                            18.58
                                                                               0.
                                                            16.83
        E. COAL $ .00
                                                                               Ο.
        F. PPG $ .00
                                                            17.38
                                                                              0.
        M. DEMAND SAVINGS
                                                                          8258.
                                                             14.88
        N. TOTAL
                                                                           12101.
    3. NON ENERGY SAVINGS(+) / COST(-)
       A. ANNUAL RECURRING (+/-)
                                                                    $ 843.
           (1) DISCOUNT FACTOR (TABLE A)
                                                        14.88
                                                                     $ 12545.
           (2) DISCOUNTED SAVING/COST (3A X 3A1)
       B. NON RECURRING SAVINGS(+) / COSTS(-)
                                 SAVINGS(+) YR DISCNT
COST(-) OC FACTR
                                                               DISCOUNTED
                                   COST(-)
                   ITEM
                                                               SAVINGS(+)/
                                       (1)
                                              (2)
                                                    (3)
                                                               COST(-)(4)
       d. TOTAL
                                 $
                                        0.
       C. TOTAL NON ENERGY DISCOUNTED SAVINGS (+) / COST (-) (3A2+3Bd4)$ 12545.
   4. FIRST YEAR DOLLAR SAVINGS 2N3+3A+(3Bd1/(YRS ECONOMIC LIFE))$
   5. SIMPLE PAYBACK PERIOD (1G/4)
                                                                       54.34 YEARS
   6. TOTAL NET DISCOUNTED SAVINGS (2N5+3C)
                                                                     $ 24646.
    7. SAVINGS TO INVESTMENT RATIO
                                            (SIR) = (6 / 1G) =
                                                                         .23
        (IF < 1 PROJECT DOES NOT QUALIFY)
**** Project does not qualify for ECIP funding; 4,5,6 for information only.
```

8. ADJUSTED INTERNAL RATE OF RETURN (AIRR):

PAGE 10-38

N/A

Estimate: BLDG 3642 Date: 29-Nov-94
Description: RENOVATE HVAC SYSTEM COST ESTIMATE
Project: LIMITED EEAP(HGR) Bid Date:
Location: FORT BRAGG, N.C. Job #: 94013.04
Sq. footage: 19500 City indx:Raleigh, NC

Line # Description

------Manhours Matl Labor Equipment Sub Total

0913100280 FEEDER INSTALLATION, INCLUDING CONDUIT AND WIRE, 200 AMPERES 0.31 9.45 60.00 L.F. Unit values 6.71 0.00 0.00 16.16 Totals \$403 18.36 \$567 \$0 \$0 \$970 \$567 \$403 A09 ELECTRICAL 19 \$0 \$0 \$970

| | | ======= | | ======== | | ======== |
|---------------------------|---------------------------------|-------------|-----------------|--------------|---------------------|---------------|
| Line # | Descriptio | n | | | | |
| | Manhours | Matl | | Equipment | | Total |
| ********** | | | ======= | | | |
| 0205543200 Unit values | SITE REMOV 4"DIAMETE 0.15 | | | ED CONNECT: | 1000.00 | |
| Totals | 150.00 | \$0 | \$2,613 | \$1,064 | 0.00 \$0 | |
| 0207183600 | HVAC DEMO, | MECH EQPI | HEAVY IT | EM | 2.00 | We w |
| Unit values Totals | 14.55 29.09 | 0.00 \$0 | 314.87 \$630 | 0.00 \$0 | 0.00 | 314.87 |
| 0208400600 | REMOVE PIP | E INSULAT | TION UP TO | 4" DIAMETE | ER PIPE 700.00 | T. 12 |
| Unit values Totals | 0.07 49.70 | 0.00 \$0 | 1.63 \$1,144 | | 0.00 | |
| 0208401000 | REMOVE INS DIAMETER P | | ROM PIPE | FITTING, U | TO 4" | Fa |
| Unit values Totals | 0.20 | 0.00 | 4.60 \$689 | 0.56 \$84 | 0.00 | 5.16 \$773 |
| 0222541900 | TAMPING TR | ENCH B'FI | LL, VIBRA | TING PLATE, | | C.Y. |
| Unit values Totals | 0.09 0.40 | 0.00 \$0 | 1.44 \$6 | | 0.00 | |
| 0222582800 | TRENCH EXC | VTNG 40HP | CHNTRNCH | R&BKFL 12"W | 124"D 60.00 | ם ז |
| Unit values Totals | 0.01 0.60 | 0.00 \$0 | 0.20 \$12 | 0.20 \$12 | 0.00 | 0.39 |
| 0260120200 | BEDDING, FOR | OR PIPE I | N TRENCH | SAND, DEAD | OR 1.50 | CV |
| Unit values Totals | 0.16 0.24 | 3.79 \$6 | 2.79 \$4 | 1.13 \$2 | 0.00 | |
| 0260120500 | BEDDING, P | LACING IN | TRENCH | | 1 50 | G V |
| Unit values Totals | 0.09 0.13 | 0.00 \$0 | 1.44 | 0.55 \$1 | 1.50 0.00 \$0 | 1.99 \$3 |
| U02 SITEWORK | 261 | \$6 | \$5,100 | \$1,302 | \$0 | \$6,408 |

| MeansData | for | Lotus |
|-------------|-----|-------|
| ricalisbaca | 101 | Locus |

| =========== | ======: | | ======= | ======== | ======= | ======== |
|-----------------------|--------------|---------------|--------------|-------------|--------------|---------------|
| Line # | Description | on | | | | |
| | Manhours | Matl | Labor E | quipment | Sub | Total |
| | ======= | | | | ====== | ======= |
| 0331305010 | 6" THICK | REINFORCED | SLAB FOR | HVAC EQUIE | PMENT 130.00 | SF |
| Unit values Totals | 0.02 3.12 | 1.45 \$189 | 0.28 \$36 | 0.00 \$0 | 0.00 | 1.73 \$225 |
| U03 CONCRETE | 4 | \$189 | \$36 | \$0 | \$0 | \$225 |

| ========== | | | ======== | ======================================= | ====== | ======== |
|---|---|--|---|---|----------------------|-----------------------------|
| Line # | Description | on | | | | |
| | | | | Equipment | | Total |
| ======================================= | . = = = = = = = = = = = = = = = = = = = | ======== | ======= | | ====== | |
| 1517010620 Unit values Totals | BLACK STEE 2-1/2" DI 0.32 384.00 | L PIPE, SC W/CPLGS&F 6.64 \$7,972 | CHEDULE 40 INGRS 10'0 4.93 \$5,917 | O, THREADED, OC 0.00 \$0 | 1200.00 | L.F. 11.57 \$13,889 |
| 1556101280 | | | | TTR 180 <f-20< td=""><td></td><td></td></f-20<> | | |
| Unit values Totals | 15# STM 2 48.00 1 48.00 | PUMP 130 7382.60 \$17,383 | GPM 771.38 \$771 | 0.00 \$0 | 1.00 0.00 \$0 | Ea. 18153.98 \$18,154 |
| 1556517150 | PIPE CVR F | BGL 1.5"TH | IK ASJ 2-1 | ./2"IPS | 1200 00 | T 17 |
| Unit values Totals | 0.09 106.80 | 1.65 \$1,978 | 1.30 \$1,561 | 0.00 \$0 | | L.F. 2.95 \$3,539 |
| 1556519680 | PIPE CVR U | RTHAN ULTV | ELL 1.5W | 7 2-1/2" IPS | 100.00 | En |
| Unit values Totals | 0.17 16.80 | 6.49 \$649 | 2.47 \$247 | 0.00 \$0 | 0.00 | 8.96 \$896 |
| 1556519840 | PIPE CVR U | RETH UV TE | E/VLV 1.5 | "W 2-1/2" I | PS 50.00 | To. |
| Unit values Totals | 0.24 12.10 | 7.79 \$390 | 3.54 \$177 | 0.00 \$0 | 0.00 | 11.33 \$567 |
| 1562408110 | VALVE BUTT | ERFLY SYST | EM BALANC | ING & SHUT- | | |
| Unit values Totals | 0.73 18.18 | 23.48 \$587 | 12.40 \$310 | 0.00 \$0 | 25.00 0.00 \$0 | 35.88 \$897 |
| 1562450160 | HVAC MIXIN | G VALVE 2" | IPS | | 2.00 | T- |
| Unit values Totals | 1.00 | 889.11 \$1,778 | 17.24 \$34 | 0.00 \$0 | 0.00 \$0 | |
| 1562600390 | PRESSURE R 2" SIZE | EG , HOT W | TR, THRDE | D IRON | 1.00 | Fo |
| Unit values Totals | 0.73 0.73 | 339.66 \$340 | 12.40 \$12 | | 0.00 | 352.06 \$352 |
| 1562600990 | PRESSURE R IRON 2" SI | | STM WET/ | SUPER THRDE | | En |
| Unit values Totals | 0.73 0.73 | 419.58 \$420 | 12.40 \$12 | 0.00 \$0 | 1.00 0.00 \$0 | 431.98 \$432 |
| 1571500110 | FAN COIL A WTR 3/4 TO | | CABINET | MTD FLTRS C | | Fo |
| Unit values | 2.29 | 649.35 | 35.09 | 0.00 | 25.00 0.00 | 684.44 |

12-Dec-94

100.00

\$12,288

MeansData for Lotus

Page 5

\$13,922

Totals 57.15 \$16,234 \$877 \$0 \$0 \$17,111 WATER CHILLER RECIPROCATING AIR COOLED 25 TON 1571900510 1.00 Ea. Unit values Totals 100.00 12287.70 1633.50 0.00 0.00 13921.20

\$1,634

\$0

\$0

| , | | | | | | | | |
|---|-----------------------|--------------|-----------------|---------------|-------------|------|-----------------|--|
| | Line # | Description | | | | | | |
| | | Manhours | Matl | Labor | Equipment | Sub | Total | |
| | U15 MECHANICAL | 747 | \$60,019 | \$11,552 | \$0 | \$0 | \$71,571 | |
| | 1633600750 | SAFETY SW | NF GEN DU | TY 240V 3 | P200AMP | 1.00 | ₽a | |
| | Unit values Totals | 6.15 6.15 | 185.20 \$185 | 95.32 \$95 | 0.00 \$0 | 0.00 | 280.52 \$280 | |
| | U16 ELECTRICAL | 7 | \$185 | \$95 | \$0 | \$0 | \$280 | |

| , | ======== | ======= | ======= | | | |
|---------------------------------------|------------------------------|------------|----------|-----------|-----|----------------------------|
| Line # | Descripti | .on | | | | |
| | Manhours | Matl | Labor | Equipment | Sub | Total |
| | | | | | | |
| ESTIMATE TOTAL | 1038 | \$60,966 | \$17,186 | \$1,302 | \$0 | \$79,454 |
| SALES TAX MATL MARKUP | 0.00% 0.00% | \$0 \$0 | | | | |
| LABOR MARKUP EQUIPT MARKUP | 0.00% 0.00% | · | \$0 | \$0 | | |
| SUB MARKUP | 0.00% | | | | \$0 | |
| TOTAL BEFORE C CONTINGENCY BOND | ONTINGENC 10.00% 0.00% | \$60,966 | \$17,186 | \$1,302 | \$0 | \$79,454 \$7,945 \$0 |
| PROFIT | 10.00% | | | | | \$7,945 |
| JOB TOTAL | | | | | | \$95,345 |

Estimate: BLDG 3642 Date: 29-Nov-94
Description: RENOVATE HVAC SYSTEM COST ESTIMATE
Project: LIMITED EEAP(HGR) Bid Date:
Location: FORT BRAGG, N.C. Job #: 94013.04
Sq. footage: 19500 City indx:Raleigh, N

City indx:Raleigh, NC

| C T | Th. | ለ እ ለ | 7 | - | 7.7 | |
|-----|-----|-------|---|---|-----|--|
| ວເ | УĮ٧ | M | А | ĸ | Y | |

| DOMENT | | | | | | |
|--|--|--|--|-------------------------------------|--------------------------|--|
| | Manhours | Matl | Labor | Equipment | Sub | Total |
| | | | | | ======== | |
| A09 ELECTRICAL U02 SITEWORK U03 CONCRETE U15 MECHANICAL U16 ELECTRICAL | 19 261 4 747 7 | \$567 \$6 \$189 \$60,019 \$185 | \$403 \$5,100 \$36 \$11,552 \$95 | \$0 \$1,302 \$0 \$0 \$0 | \$\$\$\$\$ \$\$\$\$\$ | \$970 \$6,408 \$225 \$71,571 \$280 |
| TOTAL | 1038 | \$60,966 | \$17,186 | \$1,302 | \$0 | \$79,454 |
| SALES TAX MATL MARKUP LABOR MARKUP EQUIPT MARKUP | 0.00% 0.00% 0.00% 0.00% | \$0 \$0 | \$0 | \$0 | | |
| SUB MARKUP | 0.00% | | | γo | \$0 | |
| TOTAL BEFORE CO CONTINGENCY BOND PROFIT | ONTINGENC 10.00% 0.00% 10.00% | \$60,966 | \$17,186 | \$1,302 | \$0 | \$79,454 \$7,945 \$0 \$7,945 |
| JOB TOTAL | | | | | | \$95,345 |

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LIFE CYCLE COST ANALYSIS SUMMARY STUDY: 3962ECO4
ENERGY CONSERVATION INVESTMENT PROGRAM (ECIP) LCCID FY95 (92)
INSTALLATION & LOCATION: FORT BRAGG REGION NOS. 4 CENSUS: 3
             LIFE CYCLE COST ANALYSIS SUMMARY
PROJECT NO. & TITLE: 94013.04 LES: ECO4 - HVAC RENOVATIONS FISCAL YEAR 95 DISCRETE PORTION NAME: ECO
ANALYSIS DATE: 12-13-94 ECONOMIC LIFE 20 YEARS PREPARED BY: G.B. LOFLIN
1. INVESTMENT
A. CONSTRUCTION COST $ 95345.
B. SIOH $ 4767.
C. DESIGN COST $ 4767.
D. TOTAL COST (1A+1B+1C) $ 104879.
F. PUBLIC UTILITY COMPANY REBATE $
G. TOTAL INVESTMENT (1D - 1E - 1F)
                                                              0.
                                                                         104879.
2. ENERGY SAVINGS (+) / COST (-)
DATE OF NISTIR 85-3273-X USED FOR DISCOUNT FACTORS OCT 1994
                UNIT COST SAVINGS ANNUAL $ DISCOUNT DISCOUNTED $/ MWH(1) MWH/YR(2) SAVINGS(3) FACTOR(4) SAVINGS(5)
     FUEL
                                  -62. $ -2174.
373. $ 7163.
0. $ 0.
0. $ 0.
0. $ 0.
0. $ 0.
311. $ 5544.
                                                                    15.08
     A. ELECT $ 34.95
B. DIST $ 19.18
C. RESID $ .00
D. NAT G $ 13.44
                                                                                      -32777.
                                                                    18.57
21.02
18.58
16.83
17.38
14.88
                                                                                      133016.
                                                                                             0.
                                                                                             0.
     E. COAL $ .00
F. PPG $ .00
                                                                                            Ο.
                                                                                            0.
     M. DEMAND SAVINGS
                                                                                        8258.
     N. TOTAL
                                                                                      108498.
3. NON ENERGY SAVINGS(+) / COST(-)
    A. ANNUAL RECURRING (+/-)
                                                                                      4750.
         (1) DISCOUNT FACTOR (TABLE A)
                                                                 14.88
         (2) DISCOUNTED SAVING/COST (3A X 3A1)
                                                                                 $ 70684.
    B. NON RECURRING SAVINGS(+) / COSTS(-)
                                    SAVINGS(+) YR DISCNT
COST(-) OC FACTR
(1) (2) (3)
                                                                        DISCOUNTED SAVINGS(+)/
                   ITEM
                                                                         COST(-)(4)
     d. TOTAL
                                    $
                                      0.
    C. TOTAL NON ENERGY DISCOUNTED SAVINGS(+)/COST(-)(3A2+3Bd4)$ 70684.
4. FIRST YEAR DOLLAR SAVINGS 2N3+3A+(3Bd1/(YRS ECONOMIC LIFE))$
5. SIMPLE PAYBACK PERIOD (1G/4)
                                                                                   10.19 YEARS
6. TOTAL NET DISCOUNTED SAVINGS (2N5+3C)
                                                                                $ 179182.
7. SAVINGS TO INVESTMENT RATIO
                                                 (SIR) = (6 / 1G) =
                                                                                   1.71
    (IF < 1 PROJECT DOES NOT QUALIFY)
8. ADJUSTED INTERNAL RATE OF RETURN (AIRR):
                                                                                   5.80 %
```

Estimate: BLDG 3962 Date: 29-November Description: RENOVATE HVAC SYSTEM COST ESTIMATE Project: LIMITED EEAP(HGR) Bid Date: Location: FORT BRAGG, N.C. Job #: 94013 Sq. footage: 19500 City indx:Raleight Date: 29-Nov-94

94013.04

\$0

\$0

\$970

City indx:Raleigh, NC

Description

Manhours Matl Labor Equipment Sub -

0913100280 FEEDER INSTALLATION, INCLUDING CONDUIT AND WIRE, 200 AMPERES 60.00 L.F. Unit values 0.31 6.71 0.00 9.45 0.00 16.16 Totals 18.36 \$567 \$403 \$0 \$0 \$970 A09 ELECTRICAL 19

\$403

\$567

| Line # | Descripti | on | | | | |
|---|----------------|-------------|-----------------|-----------------|----------------------|---------------------|
| | Manhours | Matl | Labor | Equipment | Sub | Total |
| ======================================= | | | | | | |
| 0205543200 | 4 "DTAMETI | FD | | | 1000 00 | I.F. |
| Unit values Totals | 0.15 150.00 | 0.00 \$0 | 2.61 \$2,613 | 1.06 \$1,064 | 0.00 | 3.68 \$3,677 |
| 0207183600 | | | | | 2.00 | Ton |
| Unit values Totals | 14.55 29.09 | 0.00 \$0 | 314.87 \$630 | 0.00 \$0 | 0 00 | 314 87 |
| 0208400600 | REMOVE PI | PE INSULAT | CION UP TO | 4" DIAMETE | R PIPE 700.00 | בו ד |
| Unit values Totals | 0.07 49.70 | 0.00 \$0 | 1.63 \$1,144 | 0.20 \$137 | 0.00 | 1.83 |
| 0208401000 | REMOVE INS | SULATION F | FROM PIPE | FITTING, UP | TO 4" 150.00 | E o |
| Unit values Totals | 0.20 30.00 | 0.00 | 4.60 \$689 | 0.56 \$84 | 0.00 | 5.16 \$773 |
| 0222541900 | TAMPING T | RENCH B'FI | LL, VIBRA | TING PLATE, | ADD | G W |
| Unit values Totals | 0.09 0.40 | 0.00 \$0 | 1.44 | 0.55 \$2 | 0.00 | C.Y. 1.99 \$8 |
| 0222582800 | TRENCH EXC | CVTNG 40HF | CHNTRNCH | | | |
| Unit values Totals | 0.01 0.60 | 0.00 \$0 | 0.20 \$12 | 0.20 \$12 | 60.00 0.00 \$0 | 0.39 |
| 0260120200 | BEDDING, E | FOR PIPE I | N TRENCH | SAND, DEAD | | C.Y. |
| Unit values Totals | | 3.79 \$6 | 2.79 \$4 | 1.13 | 0.00 | 7.71 |
| 0260120500 | BEDDING, B | PLACING IN | TRENCH | | | G 17 |
| Unit values Totals | 0.09 | 0.00 \$0 | 1.44 | 0.55 \$1 | 1.50 0.00 \$0 | 1.99 \$3 |
| U02 SITEWORK | 261 | \$6 | \$5,100 | \$1,302 | \$0 | \$6,408 |

| | ======== | | ======= | ========= | | |
|---|--------------|---------------|--------------|---|-----------------------|---------------|
| Line # | Description | on | | | | |
| | Manhours | Matl | Labor | Equipment | Sub | Total |
| ======================================= | | | | ==,==================================== | | ======= |
| 0331305010 | 6" THICK | REINFORCE | D SLAB FO | OR HVAC EQUI | | 2.5 |
| Unit values Totals | 0.02 3.12 | 1.45 \$189 | 0.28 \$36 | 0.00 \$0 | 130.00 0.00 \$0 | 1.73 \$225 |
| U03 CONCRETE | 4 | \$189 | \$36 | \$0 | \$0 | \$225 |

| | | ======= |
|-----------------------|--|----------------------|
| Line # | Description | |
| | Manhours Matl Labor Equipment Sub | Total |
| | ======================================= | |
| 1517010620 | BLACK STEEL PIPE, SCHEDULE 40, THREADED, 2-1/2" DI W/CPLGS&HNGRS 10'OC 1200.00 L | .F. |
| Unit values Totals | 2-1/2" DI W/CPLGS&HNGRS 10'OC 1200.00 L 0.32 6.64 4.93 0.00 0.00 384.00 \$7,972 \$5,917 \$0 \$0 | 11.57 \$13,889 |
| 1556101280 | HEAT TRANS PKG COMPLETE HOT WTR 180 <f-200<f 1.00="" 130="" 15#="" 2="" e<="" gpm="" pump="" stm="" td=""><td>2</td></f-200<f> | 2 |
| Unit values Totals | 15# STM 2 PUMP 130 GPM 1.00 E 48.00 17382.60 771.38 0.00 0.00 48.00 \$17,383 \$771 \$0 \$0 | 18153.98 \$18,154 |
| | PIPE CVR FBGL 1.5"THK ASJ 2-1/2"IPS 1200.00 L | D |
| Unit values Totals | 0.09 1.65 1.30 0.00 0.00 106.80 \$1,978 \$1,561 \$0 \$0 | 2.95 \$3,539 |
| 1556519680 | PIPE CVR URTHAN ULTV ELL 1.5W 2-1/2" IPS | _ |
| Unit values Totals | 0.17 6.49 2.47 0.00 0.00 16.80 \$649 \$247 \$0 \$0 | 8.96 \$896 |
| 1556519840 | PIPE CVR URETH UV TEE/VLV 1.5"W 2-1/2" IPS | _ |
| Unit values Totals | 0.24 7.79 3.54 0.00 0.00 12.10 \$390 \$177 \$0 \$0 | 11.33 |
| 1562408110 | VALVE BUTTERFLY SYSTEM BALANCING & SHUT-OFF 2 " 3 | SIZE |
| Unit values Totals | 0.73 23.48 12.40 0.00 0.00 18.18 \$587 \$310 \$0 \$0 | 35.88 |
| 1562450160 | HVAC MIXING VALVE 2" IPS | _ |
| Unit values Totals | 1.00 889.11 17.24 0.00 0.00 2.00 \$1,778 \$34 \$0 \$0 | 906.35 \$1,812 |
| 1562600390 | PRESSURE REG , HOT WTR, THRDED IRON 2" SIZE 1.00 Ea | _ |
| Unit values Totals | 0.73 339.66 12.40 0.00 0.00 0.73 \$340 \$12 \$0 \$0 | 352.06 \$352 |
| 1562600990 | PRESSURE REG PROCESS STM WET/SUPER THRDED IRON 2" SIZE 1.00 Ea | |
| Unit values Totals | | 431.98 \$432 |
| 1571500110 | FAN COIL AIR CONDIT. CABINET MTD FLTRS CHILL WTR 3/4 TON 25.00 Ea | |
| Unit values | 2.29 649.35 35.09 0.00 0.00 | 684.44 |

| 30 | - NOTE | 94 |
|----|--------|----|

MeansData for Lotus

Page 5

57.15 \$16,234 \$877 \$0 \$0 \$17,111 Totals 1571900510 WATER CHILLER RECIPROCATING AIR COOLED 25 TON 1.00 Ea. 100.00 12287.70 Unit values 1633.50 0.00 13921.20 0.00 Totals \$12,288 \$1,634 \$0 \$0 \$13,922

| Line # | Descriptio | on | | | | | | | | |
|-----------------------|--------------|-----------------|---------------|-------------|------|----------|--|--|--|--|
| | Manhours | Matl | Labor | Equipment | Sub | Total | | | | |
| | | | | | | | | | | |
| U15 MECHANICAL | 747 | \$60,019 | \$11,552 | \$0 | \$0 | \$71,571 | | | | |
| 1633600750 | SAFETY SW | NF GEN DUT | TY 240V 3 | 3P200AMP | 1.00 | Fa | | | | |
| Unit values Totals | 6.15 6.15 | 185.20 \$185 | 95.32 \$95 | 0.00 \$0 | 0.00 | 280.52 | | | | |
| U16 ELECTRICAL | 7 | \$185 | \$95 | \$0 | \$0 | \$280 | | | | |

|) | ========== | ======== | ======= | | | ======== | ======= | : |
|---|--|------------------------------|------------|----------|-----------|----------|---------------------|---|
| | Line # | Descripti | on | | | | | |
| | | Manhours | Matl | Labor | Equipment | Sub | Total | |
| | | | | | | | | • |
| | ESTIMATE TOTAL | 1038 | \$60,966 | \$17,186 | \$1,302 | \$0 | \$79,454 | |
| | SALES TAX MATL MARKUP LABOR MARKUP | 0.00% 0.00% 0.00% | \$0 \$0 | \$0 | | | | |
| | EQUIPT MARKUP SUB MARKUP | 0.00% | | 40 | \$0 | \$0 | | |
| | TOTAL BEFORE CONTINGENCY BOND | ONTINGENC 10.00% 0.00% | \$60,966 | \$17,186 | \$1,302 | \$0 | \$79,454 \$7,945 | |
| | PROFIT | 10.00% | | | | | \$0 \$7,945 | |
| | JOB TOTAL | | | | | | \$95,345 | |

Date: 29-Nov-94

JOB TOTAL

Estimate: BLDG 3962 Date: 29-NovDescription: RENOVATE HVAC SYSTEM COST ESTIMATE
Project: LIMITED EEAP(HGR) Bid Date:
Location: FORT BRAGG, N.C. Job #: 94013:
Sq. footage: 19500 City indx:Raleigh 94013.04 City indx:Raleigh, NC

| ========= | S | UMMARY | | | | |
|--|--|--|--|-------------------------------------|-----------------------|--|
| | Manhours | Matl | Labor | Equipment | Sub | Total |
| | ====== | | | | | |
| A09 ELECTRICAL U02 SITEWORK U03 CONCRETE U15 MECHANICAL U16 ELECTRICAL | 19 261 4 747 7 | \$567 \$6 \$189 \$60,019 \$185 | \$403 \$5,100 \$36 \$11,552 \$95 | \$0 \$1,302 \$0 \$0 \$0 | 99999 9999 9999 | \$970 \$6,408 \$225 \$71,571 \$280 |
| TOTAL | 1038 | \$60,966 | \$17,186 | \$1,302 | \$0 | \$79,454 |
| SALES TAX MATL MARKUP LABOR MARKUP EQUIPT MARKUP SUB MARKUP | 0.00% 0.00% 0.00% 0.00% | \$0 \$0 | \$0 | \$0 | \$0 | |
| TOTAL BEFORE CO CONTINGENCY BOND PROFIT | ONTINGENC 10.00% 0.00% 10.00% | \$60,966 | \$17,186 | \$1,302 | \$0 | \$79,454 \$7,945 \$0 \$7,945 |

\$95,345

```
LIFE CYCLE COST ANALYSIS SUMMARY
       LIFE CYCLE COST ANALYSIS SUMMARY STUDY: 4137ECO4
ENERGY CONSERVATION INVESTMENT PROGRAM (ECIP) LCCID FY95 (92)
  INSTALLATION & LOCATION: FORT BRAGG REGION NOS. 4 CENSUS: 3
  PROJECT NO. & TITLE: 94013.04 LES: ECO4 - HVAC RENOVATIONS
  FISCAL YEAR 95 DISCRETE PORTION NAME: ECO
  ANALYSIS DATE: 12-12-94 ECONOMIC LIFE 20 YEARS PREPARED BY: G.B. LOFLIN
  1. INVESTMENT
  A. CONSTRUCTION COST
                                    76979.
  B. SIOH $
C. DESIGN COST $
                                   3849.
  C. DESIGN COST $ 3849.
D. TOTAL COST (1A+1B+1C) $ 84677.
  E. SALVAGE VALUE OF EXISTING EQUIPMENT $
                                                     0.
  F. PUBLIC UTILITY COMPANY REBATE
                                                     Ο.
  G. TOTAL INVESTMENT (1D - 1E - 1F)
                                                               84677.
  2. ENERGY SAVINGS (+) / COST (-)
  DATE OF NISTIR 85-3273-X USED FOR DISCOUNT FACTORS OCT 1994
                UNIT COST SAVINGS ANNUAL $ DISCOUNT DISCOUNTED $/ MWH(1) MWH/YR(2) SAVINGS(3) FACTOR(4) SAVINGS(5)
      FUEL
                               -61. $ -2128. 15.08

133. $ 2552. 18.57

0. $ 0. 21.02

0. $ 0. 18.58

0. $ 0. 16.83

0. $ 0. 17.38

$ 555. 14.88

72. $ 980.
      A. ELECT $ 34.95
                                                                          -32087.
      B. DIST $ 19.18
                                                                          47399.
      C. RESID $ .00
                                                                            0.
      D. NAT G $ 13.44
                                                                                0.
      E. COAL $ .00
F. PPG $ .00
                                                                                0.
                                                                               0.
      M. DEMAND SAVINGS
                                                                            8258.
      N. TOTAL
                                                                           23571.
  3. NON ENERGY SAVINGS(+) / COST(-)
     A. ANNUAL RECURRING (+/-)
                                                        14.88
         (1) DISCOUNT FACTOR (TABLE A)
                                                                           1339.
          (2) DISCOUNTED SAVING/COST (3A X 3A1)
                                                                           19923.
     B. NON RECURRING SAVINGS(+) / COSTS(-)
                                SAVINGS(+) YR DISCNT
COST(-) OC FACTR
                                                              DISCOUNTED
SAVINGS(+)/
                                  COST(-) UC (2)
                  ITEM
                                                   (3)
                                                               COST(-)(4)
     d. TOTAL
                                $
                                   0.
                                                                     0.
     C. TOTAL NON ENERGY DISCOUNTED SAVINGS(+)/COST(-)(3A2+3Bd4)$ 19923.
  4. FIRST YEAR DOLLAR SAVINGS 2N3+3A+(3Bd1/(YRS ECONOMIC LIFE))$ 2319.
  5. SIMPLE PAYBACK PERIOD (1G/4)
                                                                       36.52 YEARS
  6. TOTAL NET DISCOUNTED SAVINGS (2N5+3C)
                                                                      $ 43494.
  7. SAVINGS TO INVESTMENT RATIO
                                           (SIR) = (6 / 1G) =
     (IF < 1 PROJECT DOES NOT QUALIFY)
** Project does not qualify for ECIP funding; 4,5,6 for information only.
  8. ADJUSTED INTERNAL RATE OF RETURN (AIRR):
                                                                       N/A
```

Totals

18.36

A09 ELECTRICAL 19 \$567 \$403

Estimate: BLDG 4137 Date: 29-NovDescription: RENOVATE HVAC SYSTEM COST ESTIMATE
Project: LIMITED EEAP(HGR) Bid Date:
Location: FORT BRAGG, N.C. Job #: 94013
Sq. footage: 12000 City indx:Raleigh 29-Nov-94 94013.04 City indx:Raleigh, NC Line # Description Manhours Matl Labor Equipment Sub 0913100280 FEEDER INSTALLATION, INCLUDING CONDUIT AND WIRE, 200 AMPERES 0.31 9.45 60.00 L.F. Unit values 6.71 0.00 16.16 0.00

\$403

\$0

\$0

\$0

\$0

\$970

\$970

\$567

|) | | ======= | ======= | ======== | | ====== | |
|---|---|-------------------------|-------------|-----------------|---------------|---------------------|-----------------|
| | Line # | Descriptio | | | | | |
| | | Manhours | Matl | Labor Eq | quipment | Sub | Total |
| | ======================================= | ======= | | | ======= | ======= | ======== |
| | 0205543200 | SITE REMOV 4"DIAMETE | R | | | 700 00 | L.F. |
| | Unit values Totals | 0.15 105.00 | 0.00 \$0 | 2.61 \$1,829 | 1.06 \$745 | 0.00 \$0 | 3.68 \$2,574 |
| | 0207183600 | HVAC DEMO, | MECH EQPT | | | 1.00 | Ton |
| | Unit values Totals | 14.55 14.55 | 0.00 \$0 | 314.87 \$315 | 0.00 \$0 | 0.00 | 314.87 |
| | 0208400600 | REMOVE PIP | E INSULAT | ION UP TO 4 | " DIAMETER | PIPE 500.00 | |
| | Unit values Totals | 0.07 35.50 | 0.00 \$0 | 1.63 \$817 | 0.20 \$98 | 0.00 | 1.83 |
| | 0208401000 | DIAMETED D | | | | | |
| | Unit values Totals | 0.20 20.00 | 0.00 \$0 | 4.60 \$460 | 0.56 \$56 | 0.00 | 5.16 |
| | 0222541900 | TAMPING TR | ENCH B'FII | LL, VIBRATI | NG PLATE, | ADD | C.Y. |
| | Unit values Totals | 0.09 0.40 | 0.00 \$0 | 1.44 \$6 | 0.55 \$2 | 0.00 | 1.99 |
| | 0222582800 | TRENCH EXC | VTNG 40HP | CHNTRNCHR& | BKFL 12"W2 | | T 17 |
| | Unit values Totals | 0.01 | 0.00 \$0 | 0.20 \$12 | 0.20 \$12 | | 0.39 \$24 |
| | 0260120200 | BEDDING, FOR | OR PIPE IN | N TRENCH SA | ND, DEAD C | R 1.50 | CV |
| | Unit values Totals | 0.16 0.24 | 3.79 \$6 | 2.79 \$4 | 1.13 \$2 | | 7.71 \$12 |
| | 0260120500 | BEDDING, PI | LACING IN | TRENCH | | 1 50 | C V |
| | Unit values Totals | 0.09 0.13 | 0.00 \$0 | 1.44 \$2 | 0.55 \$1 | 1.50 0.00 \$0 | 1.99 |
| | U02 SITEWORK | 177 | \$6 | \$3,445 | \$916 | \$0 | \$4,367 |

| ======================================= | | | ======= | ======= | ====== | ======== |
|---|--------------|---------------|--------------|-------------|-----------------------|---------------|
| Line # | Description | on | | | | |
| | Manhours | Matl | Labor E | quipment | Sub | Total |
| | ======== | | | | =====: | ======= |
| 0331305010 | 6" THICK | REINFORCED | SLAB FOR | HVAC EQUI | | a 5 |
| Unit values Totals | 0.02 2.64 | 1.45 \$160 | 0.28 \$31 | 0.00 \$0 | 110.00 0.00 \$0 | 1.73 \$191 |
| U03 CONCRETE | 3 | \$160 | \$31 | \$0 | \$0 | \$191 |

| ========= | | ======= | ======= | ======== | ====== | ======= |
|---|--------------------------|-------------------|---------------------|--------------|------------------|----------------------|
| Line # | Description | on | | | | |
| | Manhours | | | quipment | | Total |
| ======================================= | ======== | | | | | ======== |
| 1517010620 Unit values | 2-1/2" D: 0.32 | W/CPLGS& | HNGRS 10'00 4.93 | THREADED, | 900.00 | L.F. 11.57 |
| Totals | 288.00 | \$5,979 | \$4,438 | \$0 | \$0 | \$10,417 |
| 1556101280 | 15# STM 2 | 2 PUMP 130 | GPM | | 1.00 | |
| Unit values Totals | | | 771.38 \$771 | | | 18153.98 \$18,154 |
| 1556517150 | | | | | 900.00 | L.F. |
| Unit values Totals | 0.09 80.10 | 1.65 \$1,484 | 1.30 \$1,171 | 0.00 \$0 | 0.00 \$0 | 2.95 \$2,655 |
| 1556519680 | | | | · | 60.00 | Ea. |
| Unit values Totals | 0.17 10.08 | 6.49 \$390 | 2.47 \$148 | 0.00 \$0 | 0.00 | 8.96 |
| 1556519840 | PIPE CVR U | JRETH UV T | EE/VLV 1.5 | 'W 2-1/2" I | PS 40.00 | Ea |
| Unit values Totals | 0.24 9.68 | 7.79 \$312 | 3.54 \$142 | 0.00 \$0 | 0.00 | 11.33 |
| 1562408110 | VALVE BUTT | ERFLY SYST | TEM BALANCI | ING & SHUT- | OFF 2 " 15.00 | |
| Unit values Totals | | 23.48 \$352 | 12.40 \$186 | 0.00 \$0 | 0.00 | 35.88 \$538 |
| 1562450160 | HVAC MIXIN | IG VALVE 2' | ' IPS | | 2.00 | Fo |
| Unit values Totals | 1.00 | 889.11 \$1,778 | 17.24 \$34 | 0.00 \$0 | 0.00 | |
| 1562600390 | PRESSURE R | EG , HOT W | NTR, THRDED | IRON | 1.00 | Fa |
| Unit values Totals | 0.73 0.73 | 339.66 \$340 | 12.40 \$12 | 0.00 \$0 | 0.00 | 352.06 |
| 1562600990 | PRESSURE R IRON 2" SI | | S STM WET/S | SUPER THRDEI | 1.00 | Fa |
| Unit values Totals | 0.73 0.73 | 419.58 \$420 | 12.40 \$12 | 0.00 \$0 | 0.00 | 431.98 \$432 |
| 1571500110 | FAN COIL A | | CABINET M | ITD FLTRS CH | HILL 15.00 | Ea. |
| Unit values | 2.29 | 649.35 | 35.09 | 0.00 | 0.00 | 684.44 |

| 12-Dec-94 | MeansData for Lotus | | | | | Page 5 | | |
|-----------------------|---------------------|----------------------|--------------------|-------------|------|----------------------|--|--|
| Totals | 34.29 | \$9,740 | \$526 | \$0 | \$0 | \$10,266 | | |
| 1571900510 | WATER CHII | LLER RECIP | PROCATING AIR | COOLED 15 | TON | Ea. | | |
| Unit values Totals | 100.00 | 11088.90 \$11,089 | 1633.50 \$1,634 | 0.00 \$0 | 0.00 | 12722.40 \$12,723 | | |

| Line # | Descripti | on | | | | |
|-----------------------|--------------|-----------------|---------------|-------------|---------------------|------------------------|
| | Manhours | Matl | Labor | Equipment | Sub | Total |
| U15 MECHANICAL | 585 | \$49,267 | \$9,074 | \$0 | \$0 | \$58,341 |
| 1633600750 | SAFETY SW | NF GEN D | JTY 240V : | 3P200AMP | | _ |
| Unit values Totals | 6.15 6.15 | 185.20 \$185 | 95.32 \$95 | 0.00 \$0 | 1.00 0.00 \$0 | Ea. 280.52 \$280 |
| U16 ELECTRICAL | 7 | \$185 | \$95 | \$0 | \$0 | \$280 |

| , | =========== | | ======= | ======== | | | |
|---|--|---|------------|----------|-----------|-----|---------------------------------------|
| | Line # | Descripti | on | | | | |
| | | Manhours | Matl | Labor | Equipment | Sub | Total |
| | ======================================= | | | | | | |
| | ESTIMATE TOTAL | L 791 | \$50,185 | \$13,048 | \$916 | \$0 | \$64,149 |
| | SALES TAX MATL MARKUP LABOR MARKUP | 0.00% 0.00% 0.00% | \$0 \$0 | \$0 | | | |
| | EQUIPT MARKUP SUB MARKUP | 0.00% 0.00% | | 1 | \$0 | \$0 | |
| | TOTAL BEFORE CONTINGENCY BOND PROFIT | CONTINGENC 10.00% 0.00% 10.00% | \$50,185 | \$13,048 | \$916 | \$0 | \$64,149 \$6,415 \$0 \$6,415 |
| | JOB TOTAL | | | | | | \$76,979 |

Estimate: BLDG 4137 Date: 29-Nov-94
Description: RENOVATE HVAC SYSTEM COST ESTIMATE
Project: LIMITED EEAP(HGR) Bid Date:
Location: FORT BRAGG, N.C. Job #: 94013.04
Sq. footage: 12000 City indx:Raleigh, N

City indx:Raleigh, NC

| SUMMARY |
|---------|
|---------|

| SOFTER | | | | | | |
|--|--|--|---|-----------------------------------|-----------------------------|--|
| | Manhours | Matl | Labor | Equipment | Sub | Total |
| | | | | | | |
| A09 ELECTRICAL U02 SITEWORK U03 CONCRETE U15 MECHANICAL U16 ELECTRICAL | 19 177 3 585 7 | \$567 \$6 \$160 \$49,267 \$185 | \$403 \$3,445 \$31 \$9,074 \$95 | \$0 \$916 \$0 \$0 \$0 | \$00 \$00 \$00 \$0 | \$970 \$4,367 \$191 \$58,341 \$280 |
| TOTAL | 791 | \$50,185 | \$13,048 | \$916 | \$0 | \$64,149 |
| SALES TAX MATL MARKUP LABOR MARKUP | 0.00% 0.00% 0.00% | \$0 \$0 | \$0 | • | | |
| EQUIPT MARKUP SUB MARKUP | 0.00% 0.00% | | | \$0 | \$0 | |
| TOTAL BEFORE CO CONTINGENCY BOND PROFIT | ONTINGENC 10.00% 0.00% 10.00% | \$50,185 | \$13,048 | \$916 | \$0 | \$64,149 \$6,415 \$0 \$6,415 |
| JOB TOTAL | | | | | | \$76,979 |

```
LIFE CYCLE COST ANALYSIS SUMMARY

ENERGY CONSERVATION INVESTMENT PROGRAM (ECIP)

INSTALLATION & LOCATION: FORT BRAGG REGION NOS. 4 CENSUS: 3
PROJECT NO. & TITLE: 94013.04 LES: ECO4 - HVAC RENOVATIONS
FISCAL YEAR 95 DISCRETE PORTION NAME: ECO
ANALYSIS DATE: 12-12-94 ECONOMIC LIFE 20 YEARS PREPARED BY: G.B. LOFLIN
1. INVESTMENT
A. CONSTRUCTION COST $ 14756.

B. SIOH $ 738.

C. DESIGN COST $ 738.

D. TOTAL COST (1A+1B+1C) $ 16232.

E. SALVAGE VALUE OF EXISTING EQUIPMENT $
F. PUBLIC UTILITY COMPANY REBATE
G. TOTAL INVESTMENT (1D - 1E - 1F)
                                                                   16232.
2. ENERGY SAVINGS (+) / COST (-)
DATE OF NISTIR 85-3273-X USED FOR DISCOUNT FACTORS OCT 1994
               UNIT COST SAVINGS ANNUAL $ DISCOUNT DISCOUNTED $/MWH(1) MWH/YR(2) SAVINGS(3) FACTOR(4) SAVINGS(5)
    FUEL
                               A. ELECT $ 34.95
B. DIST $ 19.18
                                                  -39.
                                                               15.08
                                                                                -585.
                                                 1932.
                                                               18.57
                                                                               35881.
                                                             18.57
21.02
18.58
16.83
17.38
14.88
    C. RESID $ .00
D. NAT G $ 13.44
                                                  0.
                                                                                   0.
                                                  0.
0.
0.
555.
                                                                                    0.
    E. COAL $ .00
F. PPG $ .00
M. DEMAND SAVINGS
                                                                                   0.
                                                                                   0.
                                                                               8258.
    N. TOTAL
                                                  2448.
                                                                               43554.
3. NON ENERGY SAVINGS (+) / COST (-)
   A. ANNUAL RECURRING (+/-)
                                                                              3421.
        (1) DISCOUNT FACTOR (TABLE A)
                                                           14.88
        (2) DISCOUNTED SAVING/COST (3A X 3A1)
                                                                         $ 50900.
   B. NON RECURRING SAVINGS(+) / COSTS(-)
                                 SAVINGS(+) YR
COST(-) OC
                                                      DISCOUNTED CAMENOG ( )
                                   VINGS, (2)
                 ITEM
                                                                  SAVINGS(+)/
                                                      FACTR
                                                     (3)
                                                                  COST(-)(4)
    d. TOTAL
                                 $ 0.
                                                                         0.
   C. TOTAL NON ENERGY DISCOUNTED SAVINGS(+)/COST(-)(3A2+3Bd4)$ 50900.
4. FIRST YEAR DOLLAR SAVINGS 2N3+3A+(3Bd1/(YRS ECONOMIC LIFE))$
5. SIMPLE PAYBACK PERIOD (1G/4)
                                                                             2.77 YEARS
6. TOTAL NET DISCOUNTED SAVINGS (2N5+3C)
                                                                         $ 94454.
7. SAVINGS TO INVESTMENT RATIO
                                            (SIR) = (6 / 1G) =
                                                                           5.82
    (IF < 1 PROJECT DOES NOT QUALIFY)
8. ADJUSTED INTERNAL RATE OF RETURN (AIRR):
                                                                          12.48 %
```

Estimate: BLDG 4242 Date: 02-Dec-94
Description: RENOVATE HVAC SYSTEM COST ESTIMATE
Project: LIMITED EEAP(HGR) Bid Date:
Location: FORT BRAGG, N.C. Job #: 94013.04
Sq. footage: 6000.00 City indx:Raleigh, N City indx:Raleigh, NC

Description

______ Manhours Matl Labor Equipment Sub Total _______

| 0913100280 | | TALLATION, | INCLUDING | CONDUIT | | |
|-----------------------|----------------------------|-----------------|-----------------|-------------|-----------------------|------------------|
| Unit values Totals | WIRE, 200 0.31 91.80 | 9.45 \$2,834 | 6.71 \$2,013 | 0.00 \$0 | 300.00 0.00 \$0 | 16.16 \$4,847 |
| A09 ELECTRICAL | 92 | \$2,834 | \$2,013 | \$0 | \$0 | \$4,847 |

| ======================================= | ======== | ======= | ======= | ========= | ======= | ======== |
|---|---------------|-------------|----------------|-----------|---------------------|----------------|
| Line # | Descriptio | n | | | | |
| | Manhours | Matl | Labor | Equipment | Sub | Total |
| ***** | ======== | | | | ====== | |
| 0207183600 | HVAC DEMO, | MECH EQPT | | | 0.00 | |
| Unit values Totals | 14.55 4.36 | 0.00 \$0 | 314.87 \$94 | 0.00 | 0.30 0.00 \$0 | 314.87 \$94 |
| U02 SITEWORK | 5 | \$0 | \$94 | \$0 | \$0 | \$94 |

| ======================================= | ======== | | ======= | | | ========= |
|---|---|---------------|-----------------|--------------|-----------------------|------------------------|
| Line # | Description | on | | | | |
| | Manhours | Matl | Labor 1 | Equipment | Sub | Total |
| ============= | ======================================= | | | | | ======== |
| 1571805070 | most tit / otte | מו | | CTRIC COOL (| ONLY 5 | Ea |
| Unit values Totals | 20.00 | 4195.80 | 423.50 \$424 | 0.00 \$0 | 0.00 | 4619.30 |
| 1572500520 | AC&V DUCT | NRK GALV S | TL 200 TO | | 500.00 | ~ 1 |
| Unit values Totals | 0.10 49.00 | 1.56 \$779 | 1.51 \$756 | 0.00 \$0 | 500.00 0.00 \$0 | 3.07 |
| 1572501560 | | | | es fabric of | | |
| Unit values Totals | METAL HELI 0.06 2.85 | 1.03 \$51 | 0.85 \$43 | 0.00 \$0 | 50.00 0.00 \$0 | 1.88 \$94 |
| 1574705040 | AC&V AIR R | RTN DMP CL | &WL 45< BI | LD 8X6" REG | | |
| Unit values Totals | 0.33 1.67 | 13.99 \$70 | 5.51 \$28 | 0.00 | 5.00 0.00 \$0 | Ea. 19.49 \$98 |
| 1574807506 | AC&V VARI | VLM MODUL | ATING MOTO | ORIZED DMP | | |
| Unit values Totals | 0.57 2.86 | | 9.47 \$47 | 0.00 \$0 | 5.00 0.00 \$0 | Ea. 118.36 \$591 |
| 1574807700 | VARI VLM M | ODULATING | MOTORIZEI | THERMST A | | |
| Unit values Totals | 1.00 | 29.47 \$88 | 16.64 \$50 | 0.00 \$0 | 3.00 0.00 \$0 | Ea. 46.11 \$138 |
| U15 MECHANICAL | 80 | \$5,728 | \$1,348 | \$0 | \$0 | \$7,076 |

| ========== | | ======== | ======= | | ======= | |
|---|--------------|-----------------|---------------|-------------|---------------------|-----------------|
| Line # | Description | on | | | | |
| | Manhours | Matl | Labor | Equipment | Sub | Total |
| ======================================= | ======== | ======= | ====== | | ====== | |
| 1633600750 | SAFETY SW | NF GEN DU | JTY 240V 3 | BP200AMP | 7 00 | P. |
| Unit values Totals | 6.15 6.15 | 185.20 \$185 | 95.32 \$95 | 0.00 \$0 | 1.00 0.00 \$0 | 280.52 \$280 |
| U16 ELECTRICAL | 7 | \$185 | \$95 | \$0 | \$0 | \$280 |

| , | ========== | ======== | ======== | ======= | | | |
|---|--|-------------------------|------------|---------|-----------|-----|---------------------|
| | Line # | Description | on | | | | |
| | | Manhours | Matl | Labor | Equipment | Sub | Total |
| | | | | | | | |
| | ESTIMATE TOTAL | 184 | \$8,747 | \$3,550 | \$0 | \$0 | \$12,297 |
| | SALES TAX MATL MARKUP LABOR MARKUP | 0.00% 0.00% 0.00% | \$0 \$0 | \$0 | | | |
| | EQUIPT MARKUP SUB MARKUP | 0.00% 0.00% 0.00% | | ŞU | \$0 | \$0 | |
| | CONTINGENCY | ONTINGENC | \$8,747 | \$3,550 | \$0 | \$0 | \$12,297 \$1,230 |
| | BOND PROFIT | 0.00% 10.00% | | | | | \$0 \$1,230 |
| | JOB TOTAL | | | | | | \$14,756 |

Date: 02-Dec-94

Estimate: BLDG 4242 Date: 02-DecDescription: RENOVATE HVAC SYSTEM COST ESTIMATE
Project: LIMITED EEAP(HGR) Bid Date:
Location: FORT BRAGG, N.C. Job #: 94013.
Sq. footage: 6000.00 City indx:Raleigh

94013.04

City indx:Raleigh, NC

SUMMARY

| Someti | | | | | | |
|--|--|------------------------------------|------------------------------------|--------------------------|-------------------------|---------------------------------------|
| | Manhours | Matl | Labor | Equipment | Sub | Total |
| | ======== | ======= | ====== | ======== | :======= | ======= |
| A09 ELECTRICAL U02 SITEWORK U15 MECHANICAL U16 ELECTRICAL | 5 80 | \$2,834 \$0 \$5,728 \$185 | \$2,013 \$94 \$1,348 \$95 | \$0 \$0 \$0 \$0 | \$ \$ \$ \$ \$ \$ \$ \$ | \$4,847 \$94 \$7,076 \$280 |
| TOTAL | 184 | \$8,747 | \$3,550 | \$0 | \$0 | \$12,297 |
| SALES TAX MATL MARKUP LABOR MARKUP | 0.00% 0.00% 0.00% | \$0 \$0 | \$0 | | | |
| EQUIPT MARKUP SUB MARKUP | 0.00% 0.00% | | | \$0 | \$0 | |
| TOTAL BEFORE C CONTINGENCY BOND PROFIT | ONTINGENC 10.00% 0.00% 10.00% | \$8,747 | \$3,550 | \$0 | \$0 | \$12,297 \$1,230 \$0 \$1,230 |
| JOB TOTAL | | | | | | \$14,756 |